Paper
TRADE JOURNAL

SOLOPHENYL BRILLIANT BLUE BL

for white tints

This new Geigy dyestuff is one of the brightest direct blues yet developed for paper—an excellent color for your white tints. It may be used in the beater or for brush or machine coating. Solophenyl Brilliant Blue BL has good fastness to light, alkali and hydrosulphite bleaching with moderate to fair resistance to chlorine. It is also important to note that this color does not tend to granite or fibre. A working sample will prove its adaptability for making uniform white papers economically.

Geigy

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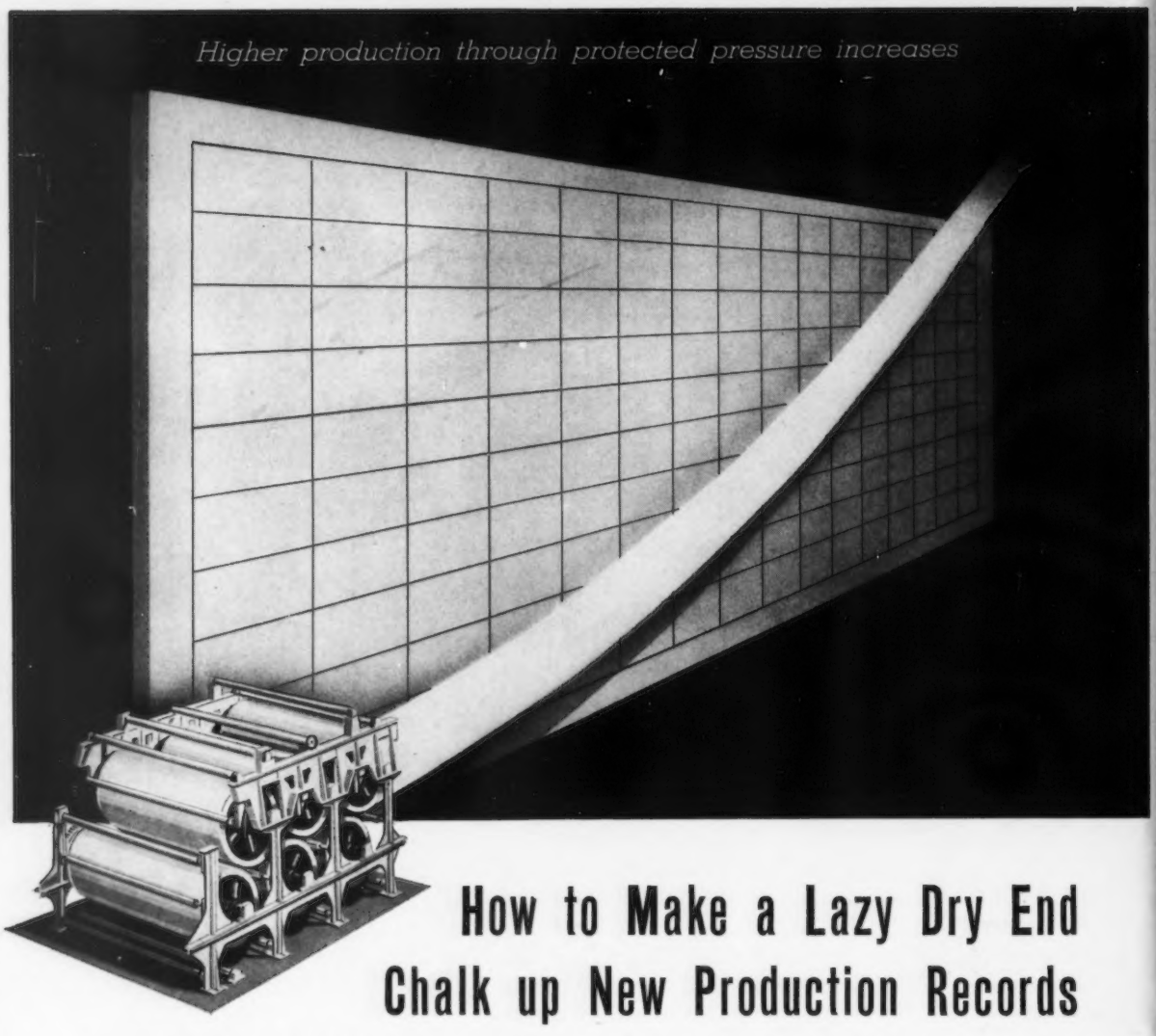

How to Make a Lazy Dry End Chalk up New Production Records

Aiming at higher output, a leading manufacturer of roofing felt revamped his drying machine. Here's how he went about it. He installed 24 Lukenweld Jacketed Steel Drier Rolls to replace rolls of another type construction at the dry end of a 3-high felt machine. This change accounted for a *16% tonnage* increase. So impressive were these results that the manufacturer installed 20 more Lukenweld Driers in another of his plants.

New output records may be within your grasp, too, with Lukenweld driers in your operation. For these driers, assuring safety through use of high-strength rolled steel plate, permit faster operation at pressures as high as 350 psi. Restricting steam to a shallow annular jacket, Lukenweld design offers you faster heat-up . . . faster reflection of pressure variations . . . while at the same time lowering installation costs, minimizing maintenance.

For information on Lukenweld drying machinery for the paper industry, write Lukenweld, Division of Lukens Steel Company, 403 Lukens Building, Coatesville, Pennsylvania.

Improved machinery for improved processes through engineering

LUKENWELD

A DIVISION OF LUKENS STEEL COMPANY

LUKENS

NEW LIGHT ON AN OLD SUBJECT*

Bringing new light to bear on the varied uses of

its products is part of Niagara's service to industry.

NIALK® Liquid Chlorine

This chemical is being used by many paper makers as an aid in the development of more efficient and economical bleaching procedures, since its traditional quality and purity are particularly helpful in assuring the production of a clean, white paper.

Quality plus cooperation keeps NIALK products at the forefront in research and product improvement.

NIAGARA ALKALI COMPANY

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NIALK CARBONATE OF POTASH NIALK PARADICHLOROBENZENE

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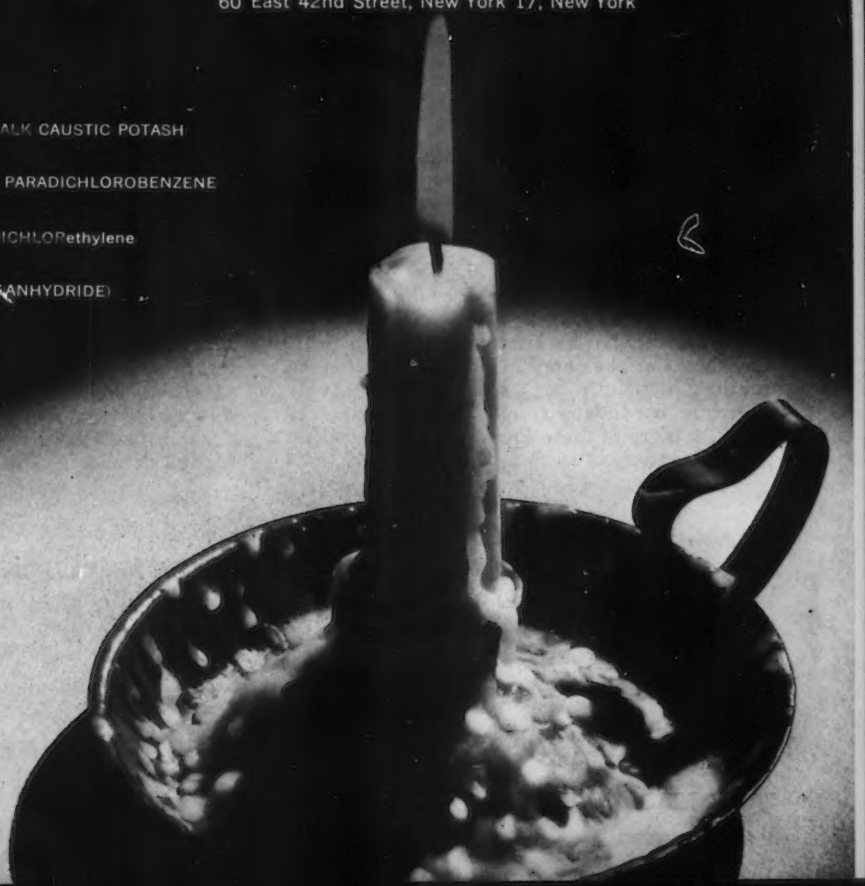
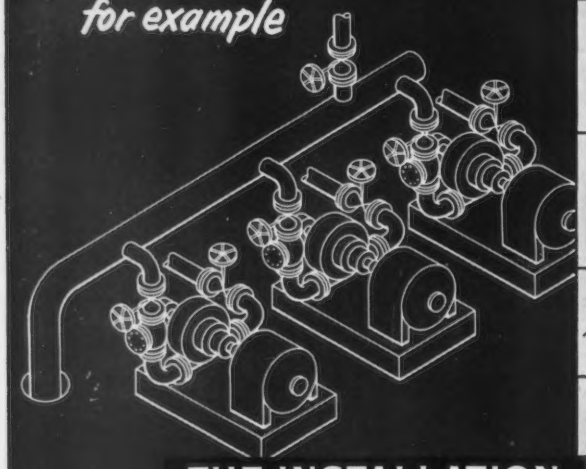
NIAGATHAL® (TETRACHLORO PHTHALIC ANHYDRIDE)



Can You Trust Your Checks to Hold Like This?

. . . on Water Pumps, for example



THE INSTALLATION

Crane Iron Body Swing Check Valves in 8-inch vertical lines on discharge side of water pumps supplying a large eastern paper mill.

VALVE SERVICE RATINGS

SUITABILITY:	Working smoothly - no complaints
FEATURES:	O.K. for either horizontal or upward flow
MAINTENANCE COST:	None - no maintenance needed to date
SERVICE LIFE:	Now better than other checks used
OPERATING RESULTS:	No water or head loss
PRICE:	In line with other makes
AVAILABILITY:	Stock item - Crane product

THE HISTORY

The mill depends on these pumps for all water. Loss of head at the pumps would create a serious problem. The mill could take no such risks. Regularly, the check valves on pumps were replaced, but only to be found leaking between pumping cycles, a few months later.

It's now more than a year since the change-over was made to Crane Check Valves. There's been no loss of water, no maintenance or replacement of any checks on the pumps. That was proof enough for the mill, that Crane Quality means better valves —greater dependability and bigger value. As a result, 3 more of these checks were installed on a separate battery of suction pumps.

THE VALVE

Crane No. 373, 125-Pound Iron Body Swing Check Valves, brass trimmed. The long life and high seating efficiency of these checks, in 2 to 8-in. sizes, is in large part due to the Crane patented flexible disc-hinge design. Double spring mounting eliminates lost motion between parts, yet permits true, full contact of disc and seat at every closure. Also serves to absorb the shock of seating under backflow pressure. See your Crane Catalog or Crane Representative for full details.

The Complete Crane Line Meets All Valve Needs. That's Why
More Crane Valves Are Used Than Any Other Make!

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CRANE CO., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
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VALVES • FITTINGS • PIPE • PLUMBING • HEATING

Paper TRADE JOURNAL

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NEXT WEEK—*We are all happy to announce a special issue which will contain the Second Series of the University of Maine Lectures on Pulp and Paper Manufacture. Each phase of the industry is developed by an expert of long technical and practical experience in his field.*

The lectures in this collection comprise those given at the University of Maine since we presented the First Series in November 1950.

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REMEMBER THESE DATES

NOV. 12-14: Alkaline Pulping Conference, Technical Assn. of the Pulp and Paper Industry, Battle House, Mobile, Ala.

NOV. 18: Miami Valley Div., of the American Pulp and Paper Mill Superintendents Assn., Joint Meeting with the Ohio Section of TAPPI, American Legion, Middletown, Ohio.

NOV. 20-21: TAPPI Corrugated Container Conference, Schroeder Hotel, Milwaukee, Wis.

NOV. 20: Michigan Division, American Pulp and Paper Mill Superintendents Assn., Hotel Harris, Kalamazoo, Mich.

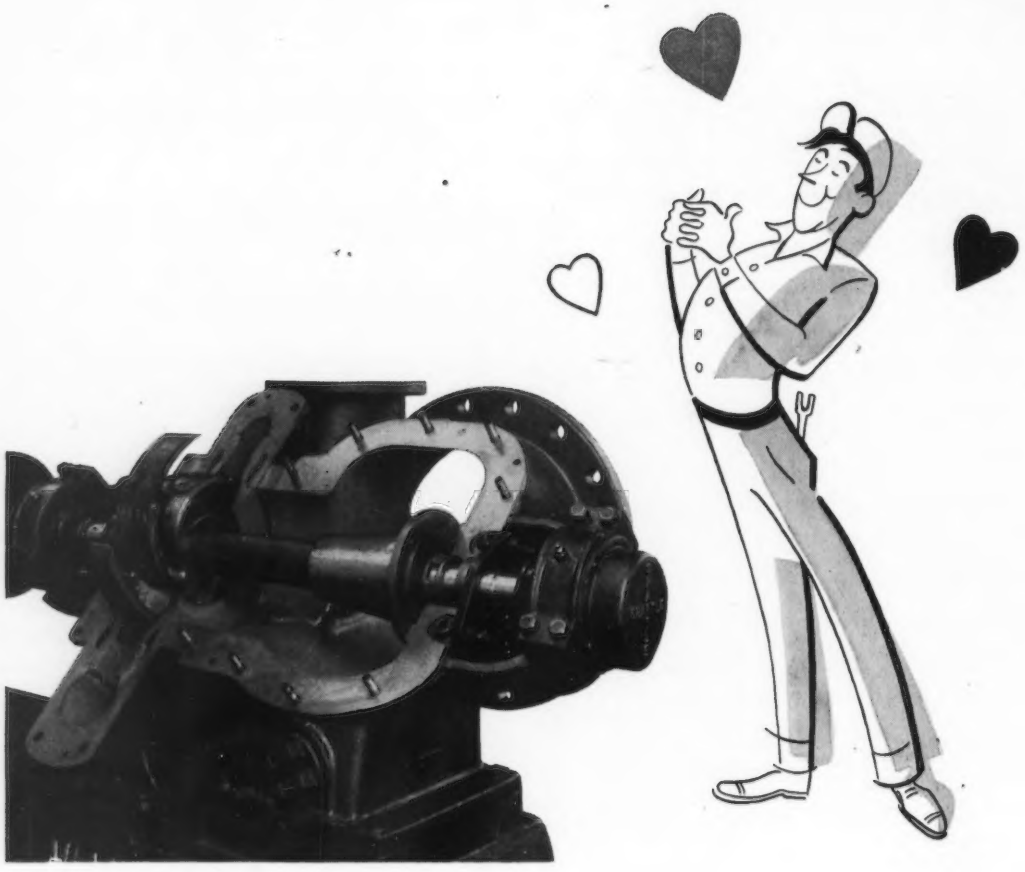
NOV. 21: New England TAPPI, Helen Kiely Night, Roger Smith Hotel, Holyoke, Mass.

DEC. 18: Michigan Division, American Pulp and Paper Mill Superintendents Assn., Hotel Harris, Kalamazoo, Mich.

Feb. 15-20, 1953: APPA, Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

FEB. 16-19, 1953: TAPPI, Annual Meeting, Commodore Hotel, New York, N. Y.

JUNE 9-11, 1953: APPMSA, National Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.



mechanic's delight

That's right—The Shartle HMSS stock pump is the "mechanic's delight"—it is so easy to service or repair.

Here's a pump that is distinctly different in that it is a diagonally and fully-split side suction pump, enabling a mechanic to remove vertically the entire rotating element. And get this—he can remove the complete rotating element without disturbing the piping connections.

Incidentally, where required the Class HMSS pump will handle up to 11% stock with ease, where mill conditions are favorable.
Range 100 GPM to 3700 GPM.

Full line of stock, water and white paper pumps; also agitation and valves.

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DILTS MACHINE WORKS, Fulton, New York
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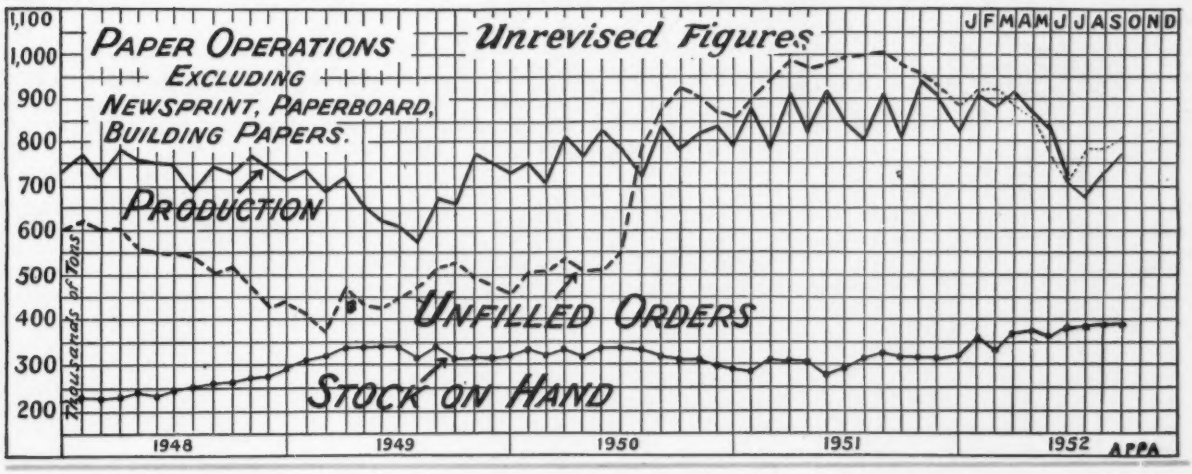


Brief of Important Figures

Source	Production	WEEK ENDING Oct. 25, '52	Sept. 27, '52	Oct. 27, '51
APPA	Paper Production Percent Capacity[3]	96.2	90.7	100.5
	Unbl. Kraft Paper Production Percent	83.4	79.9	102.3
NPA	Paperboard Operating Ratio Percent Inch Hours	97	94	85
		Sept. 1952	**Aug. 1952x**	**Sept. 1951**
APPA	Paper Production* (Except Newsprint and Building Papers) Tons	775,000	773,000	821,000
	New Orders Tons	804,000	749,000	811,000
	Unfilled Orders Tons	806,000	751,000	986,018
	Shipments Tons	748,000	765,000	811,000
		Sept. 1952	**Aug. 1952**	**Sept. 1951**
NPA	Paperboard Production Tons	875,455	886,035	816,356
	New Orders Tons	954,126	832,096	825,249
	Unfilled Orders Tons	459,907	388,360	458,150
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Manufacturers Total Index	228	204	229
	Durable Mfg. Index	270	232	269
	Nondurable Mfg. Index	194	181	197
	Chemical Products Index	294	294	303
	Mfg. Food Products Index	185	174	189
	Printing and Publishing Index	157	145	166
ODC	Magazine Advg.-Printer's Ink Index	369	403	376
	Prices Index			
BLS	Consumers Price Index[1]	191.1	190.8	185.5
	Wholesale all Commodities[4]	112.1	111.8	113.7
	Wholesale Processed Foods	110.5	110.0	111.2
	Commodities other than Farm Products and Foods[4]	112.9	112.5	114.9
	Wholesale Pulp, Paper[4] and Allied Products	115.6	115.3	119.5
	Purchasing Power of Dollar, Consumers Prices[1]	52.3	52.4	53.9
	General Activity Index			
FRS	Mfg. Production-Worker Payroll[4]	130.5	121.7	128.4
	Unemployment Compensation Initial Claims (M)	733	1,585	950
	Miscellaneous Carloadings–Thousands of Cars	1,852	1,155	1,928
	Electric Output (Million KW hr.)	39,752	37,007	37,632
PTJ	Average 32 P & P Common Stocks as of Nov. 1	$34.41	$35.33	$38.40

[1] 1935–39 = 100 Unadjusted Index.
[2] For Five Weeks.
[3] New 6-7 day basis.
[4] New Index 1947–1949 = 100.
* For details see APPA Monthly Statistical Summary—September 1952 Eestimated Figures.
° Latest Month Available on Request.
x Revised Figures.

Paper TRADE JOURNAL

TRENDS

"Oh, What a Beautiful Morning!"

It's a beautiful morning here in New York this fifth day of November, 1952. Mother Nature has supplied a perfect autumn background for the landslide victory conceded to the Ike the nation likes, and the world looks brighter to a whole lot of us—even though we're a bit blearyeyed from a night's vigil at TV sets watching election returns come in.

But let's "talk turkey" about what's in the economic picture today and what's ahead. In other words, what did Ike inherit; and what is likely to develop here and abroad in 1953.

None of us is simple enough to believe that from January next on, things are going to be quickly changed. In the words of a wise benedict given to newlyweds: "No one believes you marry and live happy ever after. You work patiently to achieve happiness." With all the president-elect is bound to fall heir—from today's inflationary cycle, as well as from the tapering off of Defense spending, it goes without saying that the best efforts of the entire nation must be devoted to the success of Ike's Crusade. It will be an uphill climb, all the way.

The Immediate Outlook Is Somewhat Uncertain

From the rash of forecasts which broke in all directions prior to Election Day, it would seem that every economist wanted to be on record as to the nation's economic outlook, regardless of which party were to be elected.

Clearly recognized is that a recession could develop before the "Washington mess" can be rooted out, and that blame for such a depression would once again be laid at the door of the Republican party.

Reporting on current conditions, the Business Survey Committee of NAPA (National Assn. of Purchasing Agents) finds the level of business high, inventories of industrial materials at a new low and coming into better balance, backlogs of orders building, employment high; and a likelihood that good business will prevail well into the first quarter of 1953.

In the opinion of the Research Institute of America's economists, we have "no more than a year in which to prepare for a recession that may be deeper and longer lasting than any interval of difficulty since the 30's," regardless of the election's outcome and barring a new foreign crisis.

The Institute's 28-page report on the business outlook for 1953 was released in October to give its members "the advantage of this last chance to firm up operations before the start of lower sales, prices and earnings," it was said.

Sawyer Finds Business Cautious . . . The Secretary of Commerce, Charles Sawyer, also finds business at a very high level and the economy of the nation healthy.

In a statement released in late October, the Commerce Secretary said that businessmen on the whole are cautious but not alarmed about the future.

Speaking about post-defense markets, Mr. Sawyer said that while defense spending does not by any means provide the major portion of our economic activity, it is substantial; and that in his opinion—a view supported unanimously by businessmen—it is important that "we undertake to find ways of maintaining high levels of business activity when Defense spending tends to level off."

This period has certainly not arrived yet, the Secretary said; perhaps will not come until the end of 1953 or shortly thereafter.

Reporting that he found practically all of the businessmen he met on a trip through the West anxious to see an end to controls, especially in cases where they feel them to be academic. Mr. Sawyer said he found men to be strongly of the opinion that taxes, and particularly the excess profits tax, make it difficult for the small businessman to accumulate the capital necessary to expand and enlarge his business.

Emphasize Need for Plasma . . . In the opinions of retailers, the watchword is advance planning.

Announcing that a committee of merchants will shortly be named to blueprint action for retailers, if and when Defense spending starts downward sometime next year. NRDGA noted that forecasts now put the peak of the nation's defense buildup in the fall of 1953 or early 1954.

Predicted by the Retailers Assn. is that the change to a normal, unsupported and self-reliant economy will be gradual, taking 18 months to two years; and that retailing's role in exchanging an economy currently established on defense spending, to one based on consumer demand will be an enormous one.

Planning NOW will pay off even if a dip never comes, in the opinion of the York Engineering & Construction Co. of Pittsburgh. In a report sent to leading executives, the York Company recommended numerous possibilities for exploration and pointedly said that "If Industry fails to do its future planning NOW, then Government will."

Guaranty Senses A Grave Danger . . . Discussing the Business Outlook and Employment Act in its November *Survey*, the Guaranty Trust Co. of New York cites the prospect of a business readjustment to follow the abnormal demands of the rearmament period, which gives special urgency to the question of the Government's attitude in the event of an actual or threatened recession; and adds that the readjustment could begin within a year or be deferred for two or more.

"The principal danger—and it is a grave danger—is that employment policy will overreach itself and try to achieve the impossible," says the *Survey* in discussing the Employment Act. . . . "Insistence upon Utopia can end only in inflation, regimentation, or both."

Private Enterprise Must Get Ideas . . . Accepted as undeniable fact by every thinking American is that a depression would better serve Moscow's ends than any fighting-war.

As we see it, our best energies must therefore be directed to developing new products that will utilize the output of this industry, provide full employment for its millions of workers, and open up new markets. Stressed is the urgency for ideas before which none can rest peacefully.

To the same end, we emphasize the foreign market, even though currently hampered by lack of fluid exchange. Other markets must be opened up and the avenues of trade be kept open.

Without foreign aid shipments, say the Government economists, a downturn in sales abroad must continue and amount to production cutbacks and resulting unemployment.

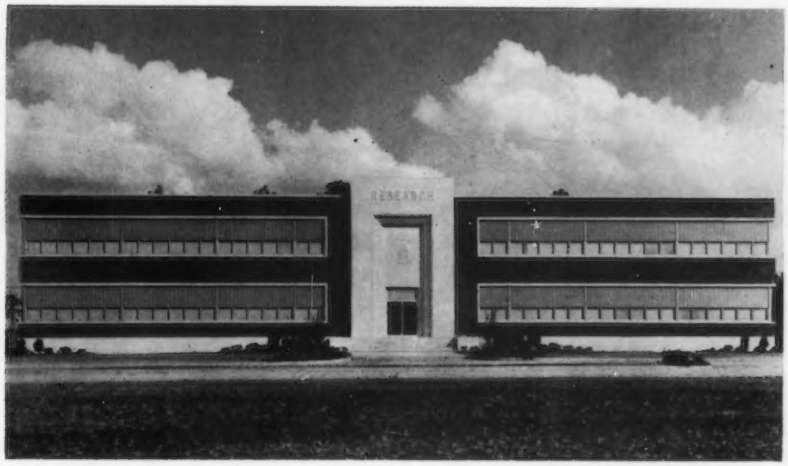
In a free world, trade is friendship; and the World's First Power needs its friends as its friends also need it.

World leadership will be held through example, also, as we see it: by the development and maintenance of a standard of living that is as fair to those in the deep South as it is to those in industrial cities; by the return of a fair profit that, without robbing his competitor, develops for each man a right return for the investment of his energy and dollars; and by the re-establishment of a standard of integrity. —E.P.N.

Paperboard Production (Tons)*

	Oct. 25 1952	Oct. 18 1952	Oct. 27 1951
Production	242,598	248,541	203,278
New Orders	200,915	226,513	184,971
Unfilled Orders	472,987	519,768	402,751
% of Activity	97	97	85

* Source: National Paperboard Assn.



International Paper Opens Research Laboratory

A $400,000 laboratory for basic research work in the development of new pulp and paper grades manufactured from southern forests was dedicated November 6 at Mobile, Ala., by Erling Riis, vice-president and general manager, Southern Kraft Division, International Paper Co., at ceremonies marking its opening.

The new building is probably the most modern and completely equipped pulp laboratory in the south, Mr. Riis said. In the laboratory, scientists will be able to duplicate all mill processes on a small scale, greatly facilitating the company's program of research on highly-specialized pulp grades.

The Research Department is headed by John W. Gilbert, Director of Research, and G. S. Mabrey, Associate Director of Research. Location of the new building adjacent to the division offices at Mobile will permit close coordination of their work with the company's manufacturing and engineering programs. Their staff now includes 40 scientists and technicians. According to Mr. Riis, the Research Department at Mobile will concentrate on basic pulp research problems of company-wide scope, or special work which mill laboratories are not equipped to perform. He pointed out that each of the mills in the Southern Kraft Division will continue to have its own quality control laboratory and staff and will be encouraged to work out its own technical problems, freeing the Mobile organization for broader or more fundamental studies.

The Southern Kraft Division has been active in research work for many years. Among the achievements of this organization were the first mass production of fourdrinier kraft linerboard from southern pines, the first successful bleaching process for both kraft paper and board in the south, the development of a process for using southern hardwoods to produce the company's Chemfiber corrugating medium and development of the first process for making dissolving pulp by the kraft process from southern hardwoods.

More and more, the work of the laboratory researchers is being coordinated with the work of the forestry and wood procurement departments, Mr. Riis said. For example, among the studies currently being carried on are investigations of the effect of wood storage on yield and pulp quality.

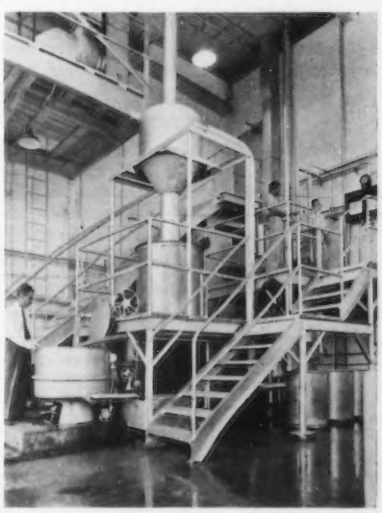
Among the special features of the new laboratory are:

Pulp Preparation Pilot Area

The pulp preparation pilot area is equipped for making unbleached pulp by any process. A type 316 stainless steel stationary digester with a capacity of about 4 cubic feet is located in this area. This digester is equipped for direct or indirect cooking and is provided with liquor measuring tanks, turpentine condenser and recording pressure and temperature instruments. There is a cyclone and a diffuser following the digester and a 30-inch Centrifugal is used for thickening after the diffuser. A stainless steel rotary autoclave of one cubic foot capacity is also used for cooking or for other process studies requiring elevated temperatures and pressures. A laboratory Bauer refiner and an Abbe Ball Mill are provided for use in the preparation of semichemical pulps and also for studying the refining characteristics of other pulps. Equipment is also available for miscellaneous chemical testing, chip classification and moisture testing.

Pulp Purification Pilot Area

The pulp purification pilot area is located adjacent to the pulp preparation area. This area is equipped with a Valley Laboratory Flat Screen, constant temperature water baths, a 12-inch centrifugal and earthenware and stainless steel containers for bleaching.



Pilot Plant Equipment for Pulp Making

Scene in the Paper Testing Laboratory

Paper Research and Development and Pulp Bleaching Area

Facilities are available for the necessary analytical work and also for the preparation of reagents used in bleaching, such as chlorine water, hypochlorite, chlorine dioxide and peroxide solutions.

Paper Testing Laboratories

Three laboratories are provided for the physical testing of paper; all three have controlled temperature and humidity. Normally, one of the laboratories is maintained at TAPPI standard conditions of 73°F. and 50 percent relative humidity, one is maintained at 73°F. and 20 percent relative humidity, and the third is maintained at 73°F. and 75 percent relative humidity. The normal physical testing of paper is carried on in the room maintained at 73°F. and 50 percent relative humidity. The wet and dry rooms are used for special investigations where it is desirable to study the behaviour of paper in dry and wet atmospheres.

Most of the standard paper testing instruments required for testing any kind of paper or board are available in these laboratories. Also available are several pieces of special equipment such as a Single Flute Crush Tester used for studying the quality of corrugating board, an instrument for measuring expansion and contraction of paper, and an instrument for measuring coefficient of friction of paper.

Separate areas are also devoted to Dissolving Pulp, Pulp Evaluations, Analytical Laboratory, and Chemical Laboratory.

Hudson Provides for Expansion

Hudson Paper Co. is reported to be holding large tracts of land in the West End of Winnipeg, Manitoba, for the purpose of future developments.

Left to Right—J. W. Gilbert is Director of Research at International's New Lab. and Guthrie S. Mabrey is Associate Director of Research.

Fighting Paper Wanted

Invitation for bids has been issued by the New York Quartermaster Procurement Agency, 111 East 16th Street, New York 3, N. Y., on QM-30-280-53-356, covering Pad, memorandum, 3″ x 5″, 1,299,800 each. Bids will be opened November 17, 1952, at 3:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

• QM-30-280-53-350, covering Cup, paper, cold and hot drinks, 4 ounces, 10,893,000 each. Bids will be opened November 12, 1952, at 3:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

• QM-30-280-53-366, covering Bag, interior packaging, greaseproof, 2,900,000 each; and Sleeve, greaseproof and waterproof, heavy duty, heat sealable, 440,000 each. Bids will be opened November 20, 1952, at 2:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

• QM-30-280-53-368, covering Paper, typewriter, bond, chemical wood, 30,722 reams; and Paper, ledger, unruled, chemical wood, 2,204 reams. Bids will be opened November 19, 1952, at 11:00 a.m. (EST) at the New York office. This procurement is for the U. S. Navy.

• QM-30-280-53-372, covering Barrier Material, waterproof, flexible, 2,800 rolls. Bids will be opened November 10, 1952, at 4:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

• QM-30-280-53-373, covering Barrier Material, water vaporproof, flexible, 2,700 rolls. Bids will be opened November 21, 1952, at 2:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

•QM-30-280-53-378, covering Bag, interior packaging, type I, grade A, class C, 1,264,000 each. Bids will be opened November 24, 1952, at 2:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

• QM-30-280-53-379, covering Paper, mimeograph, chemical wood, 530,196 reams. Bids will be opened November 26, 1952, at 1:00 p.m. (EST) at the

New York office. This procurement is for the U. S. Army and U. S. Navy.

- QM-30-280-53-380, covering Paper, bristol, index, chemical wood, various, 1,432,000 sheets. Bids will be opened November 24, 1952, at 1:00 p.m. (EST) at the New York office. This procurement is for the U. S. Navy.
- QM-30-280-53-389, covering Tape, adhesive, pressure sensitive, water resistant, transparent, 35,000 rolls. Bids will be opened November 28, 1952, at 2:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.
- QM-30-280-53-392, covering Wrapping, greaseproof, 100 yard roll, 39,279 rolls. Bids will be opened December 1, 1952, at 2:00 p.m. (EST) at the New York office. This procurement is for the U. S. Army.

Plan Veracruz Mill To Use Bagasse Pulp

Unofficial but well-informed sources reveal that Mexican and United States capital are exploring the possibilities of establishing a newsprint mill in the state of Veracruz, utilizing cane waste as prime material. The state is the largest cane producer in Mexico. Investigations are now under way to obtain accurate data on total production of cane pulp, communications, facilities to move essential materials, availability of labor, and other information.

Whereas the capital interests are secretive about their plans (nothing concrete has as yet been arranged), Governor Marco Antonio Muñoz is intervening personally to assure ultimate construction of the plant. All facilities of the State Government will be offered, including possible tax exemption for a term of years.

Industry opinion is that the new plant would cost several million dollars (20 or 30 million pesos), and that possibly it would be the first of its kind in the country. At the moment it is known that representatives of the interested groups are in the area checking information and looking at possible plant sites.

Plan New Brunswick Mill

Acadia Pulp & Paper Corp., a new firm incorporated in the Province of New Brunswick, Canada, is reported planning construction of a new pulp and paper mill in York County, New Brunswick. Construction is scheduled to start before the year end. Initially the mill will produce semi-finished paper, but eventually it might manufacture the finished product, according to a company spokesman.

MERCHANDISING IDEAS

Flowers for Kate Smith

Presenting them is Emanuel Katz, president of Doeskin Products, Inc., Miss Smith's newest sponsor of her daytime NBC television show.

T.V. for T.T.

It is difficult to get buyers to recognize a particular brand of toilet tissue. People just don't talk about the product, and it doesn't lend itself well to advertising.

C. V. Jewell, general sales manager of Capital Paper Co., Indianapolis, Ind., decided to capitalize on the interest people take in contests and prizes.

Each roll of Eiderdown now contains a slip with one printed letter. Collect enough letters to spell out Eiderdown and you get a $280 TV set free.

As an added touch, a plane flew over several supermarkets dropping thousands of the lettered slips.

Some housewives have been buying by the case. And one store has sold more in three days than it did all year.

Wins Sealright Contest

W. M. Shaw, of Wilmington, N. C., is winner of the Sealright National Ice Cream Snapshot Contest. Mr. Shaw entered the contest through the White Ice Cream and Milk Co. of Wilmington, one of the several hundred customer manufacturers of Sealright who promoted the contest in their own market areas.

The grand prize is a two weeks' Caribbean luxury cruise by Grace Lines. Mr. and Mrs. Shaw will take the cruise in November. The prize includes their expenses to and from New York City, matched Platt luggage, and an Ansco Karomat camera to record the delights of the trip.

The object of the contest was to obtain the most appealing snapshot of the enjoyment of ice cream. Mr. Shaw's winning snapshot showed his twin sons, Billie and Johnnie, and their dog Shep "really getting into a quart of White's Ice Cream" in the words of Mr. Shaw.

The contest was conducted nationally by Sealright for hundreds of ice cream manufacturing customers who package in Sealright containers and cups. The manufacturers promoted the contest in their own markets as their own promotion in their own names in cooperation with Sealright.

Something New in Containers

A corrugated container, requiring no reinforcing tapes or steel strapping, has been developed for storing and shipping up to 32 bales of rubber by Gaylord Container Corp. It uses a single-base tray held in position by a sleeve, over which two other sleeves can be slipped, providing space for additional bales. It is said to lower costs by reducing storage space and speeding loading and unloading operations.

Plan Board Mill for Santa Clara, Calif.

H. R. Freemon and Harry W. Wilson, both of San Francisco, paid $125,000 for property which includes a building of 20,000 square foot floor space now used as a storage shed and five acres of land. It is planned to erect a mill to manufacture paperboard for Royal Container Co. of San Mateo where finished boxes will be processed.

Canada's Pulp Exports Lower

OTTAWA — Canada's August exports of market pulp this year were as follows, figures in brackets being for the same month a year ago:

Bleached sulphite, 44,570 (57,869) tons; unbleached sulphite, 29,768 (53,414); bleached kraft, 40,401 (45,293); unbleached kraft, 11,112 (20,274); all chemical, 128,201 (179,747); mechanical, 19,894 (27,765).

The lower exports of Canadian market pulp is attributed to a general lowering of demand on world markets together with stiffer competition encountered by the Canadian mills, with the latter getting about $5 less a ton for most grades in the United States market in the final quarter of this year. Scandinavian shippers have been reducing their prices, sowewhat below Canadian prices to get the U. S. business.

PEOPLE

ERNEST H. MALING, senior vice-president of Brown Co., who recently retired after 32 years of service with the company, was named vice-chairman of Brown's Board of Directors.

Mr. Maling began his Brown Co. career in 1920 in the Accounting Department of the Portland Office. In 1933 he was made comptroller of the company and in 1941 he became treasurer with his office located in Berlin, N. H. He became vice-president of Finance and Accounts and Treasurer in 1943.

Laurence F. Whittemore, president of Brown Co., was named Chairman of the Board of Directors of the company. Mr. Whittemore became president of Brown January 1, 1950 and will continue to serve in that capacity. He has been a member of the Board of Directors since 1941. His relationship with Brown Co. actually began in 1935 when he became a member of the stockholder's committee with regards to reorganization and served as sub-chairman of the group.

H. A. HELDER, who has served as Canton division manager of the Champion Paper and Fibre Co. since 1946, has been elected vice-president and division manager of the Carolina Division of the firm.

Mr. Helder came to the Canton division as a chemist in 1908. He was promoted to chief chemist in 1924 after serving as superintendent of the extract department for four years. From superintendent of the extract department he was elevated to technical director of the Canton division which capacity he filled until 1937 when he was made assistant mill manager.

Mr. Helder was promoted to mill manager in 1939 and remained in this capacity until he was named Canton division manager of the firm in 1946. Regarded as a leader for years in pulp and paper making circles, Mr. Helder is an active member of many of the major pulp and paper making associations and chemical societies.

EDWARD H. MORGAN was appointed an Eastern regional sales manager for Marathon Corp., with headquarters in the New York office.

JAMES F. STEVENSON became the division manager of the Wheelwright Division of The Mead Corp., Leominster, Mass. November 3. His appointment climaxes nine years of growing responsibility with Mead since he joined the company in October, 1943 as a research and development engineer at Chillicothe, Ohio. For the past year and a half he has been assistant director of Research, Development, and Corporation Technical Service. Before that, from June, 1949 to June, 1951, he was assistant to the director of Corporation Technical Service.

RALPH M. WESCOTT has assumed the position of Purchasing Agent of Keyes Fibre Co. He has served as assistant to the purchasing agent for more than ten years.

HARVARD G. YOUNG, whom Mr. Wescott replaces, is transferring to the engineering department staff.

MAX R. OBERDORFER, formerly executive vice-president and general manager of St. Helens Pulp & Paper Co., St. Helens, Ore. has been elected president of the company to succeed his late father, Max Oberdorfer, Sr.

VERNON TIPKA will become asst. to president of St. Lawrence Paper Corp., Norfolk, N. Y. He was formerly secretary of the Newsprint Service Bureau.

RUDY E. SMALL has been named sales manager of the Paper Converting Co., Green Bay, Wis. Mr. Small served as sales engineer until his promotion. He joined the firm in 1947 after a year in the engineering department of Northern Paper Mills. Previously he was associated with the Crane Co. of Chicago.

JOHN F. HOOPER, associated for the past 12 years with the Rayonier Research Laboratories at Shelton, Wash., has been appointed chief chemist of the Jesup Division of Rayonier Inc.

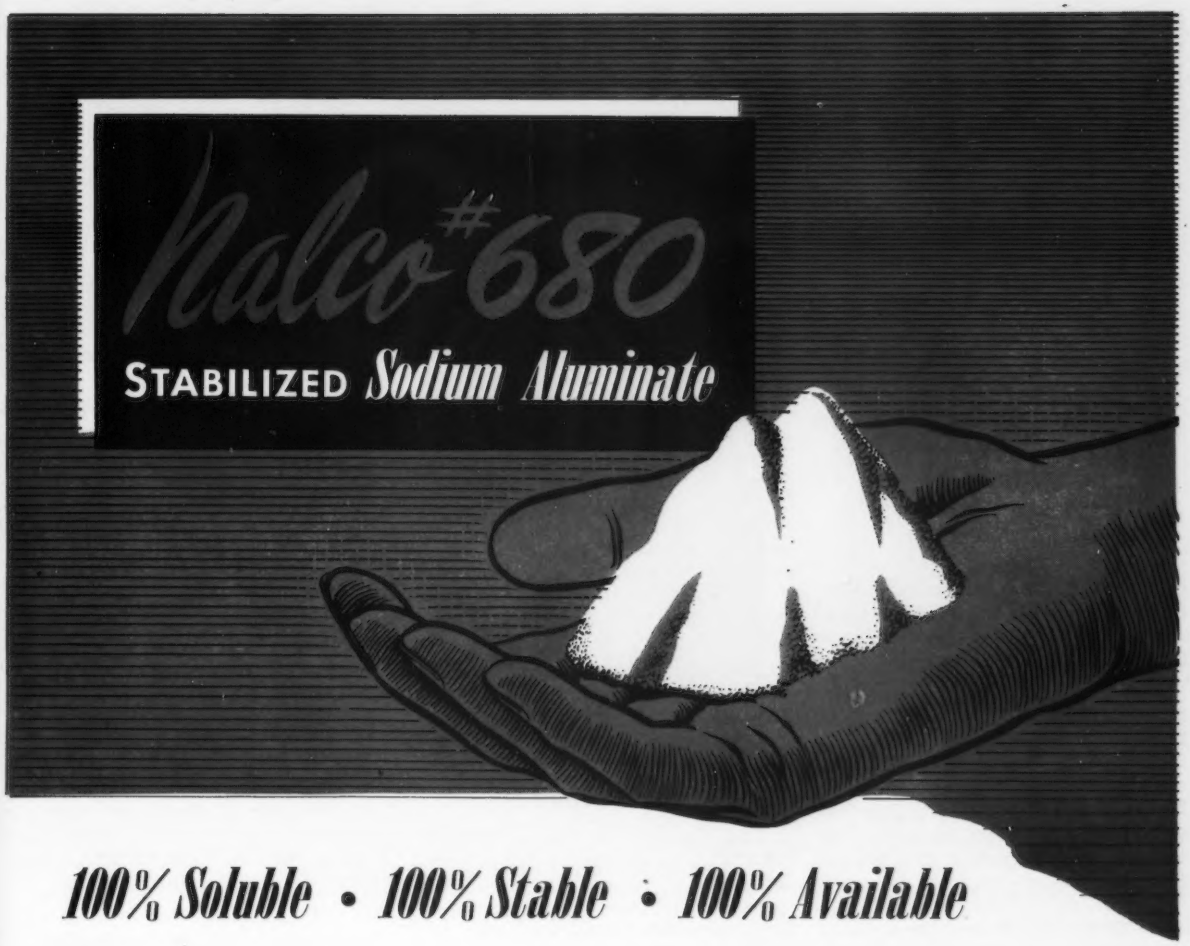
In his new position at Jesup, Ga., where the company's new $25 million plant is under construction, Mr. Hooper will head up technical control operations.

JAMES B. CRAIG, manager of American Forest Products Industries New York City news bureau since May, 1950, announced his resignation to assume editorship of American Forests magazine. Mr. Craig started his new duties November 1.

LEROY MASSEY has been named manager of Western Sales and Service of Union Bag and Paper Corp. A member of the Union organization since 1924 Mr. Massey served most recently as Western District manager of Flexible Packaging Sales. . . . . .

. . . . . **Malcolm Smith** succeeds Mr. Massey as Western District manager of Flexible Packaging Sales. Formerly a sales representative in Idaho and Texas, Mr. Smith joined the company in 1938. Both men will headquarter in the company's Chicago office.

A. R. WEBB has been named acting manager of the converting plant of Pacific Mills, Ltd. at Vancouver, B. C. **G. R. Sharpe** has been named the plant manager of Canadian Boxes Limited, a Pacific Mills subsidiary in Vancouver.



100% Soluble • 100% Stable • 100% Available

NALCO 680 is *completely* soluble, *completely* stable . . . the one sodium aluminate that remains in solution as sodium aluminate and does not settle out.

Every ounce of Nalco 680 provides active alkaline alumina . . . always available for rapid reaction. That means reduced alum requirements, lower acidity, better sizing, better retention, and therefore, better products.

Read the results reported at right — then ask a Nalco Representative to show you how Nalco 680 can repeat them in your mill.

BOX BOARD MILL — Power Savings

"Machine tenders report much better sheet formation with Nalco 680, and that jordans can be cut back 10 amps. Machines are cleaner with no deposits on cylinders."

KRAFT MILL — Alumina Retention

"Improvement in sizing, better retention of alumina, and general texture of the sheet using Nalco 680 are very marked. Converter reports the sheet handles better."

SULFITE BOND MILL — 45% Less Alum

"Results using Nalco 680 at the rate of 5 pounds per ton have been good. Improved sizing and reduced alum so that 140 pounds of alum is being added per 4500 pounds of furnish, instead of the previous 250 pounds of alum. This enabled the mill to meet rigid pH specifications for the paper."

TISSUE MILL — Clean Machines

"No. 6 paper machine remaining clean and generally good results through the use of Nalco 680 applied at the rate of four pounds per ton into the fan pump suction."

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SUPPLIERS

A. O. Williams

CLARK EQUIPMENT CO. has appointed A. O. Williams director of engineering of its Industrial Truck Division. He will coordinate and lead all Clark engineering activities in the field of Material Handling equipment.

ROHM & HAAS CO. elected Donald F. Murphy a vice-president. In 1930 Mr. Murphy started as an entomologist in the company's laboratories, and later was named head of its Entomology Laboratory at Bristol, Pa. In June 1943 he was appointed sales manager of the company's Agricultural & Sanitary Chemical Department, and in recent years has, in addition, directed sales of its Textile and Export Departments. In April 1951 he was named an assistant secretary of the company. During the past year Mr. Murphy has devoted much of his time to expanding Rohm & Haas export business throughout the world.

BAGLEY & SEWALL CO., paper machinery builders of Watertown, N. Y., have announced that two Mexican paper companies have withdrawn all breach of contract charges against the company.

Campania de las Fabricas de Papel de San Rafael y Anexas, S. A., and Cartonera Nacional, S. A., brought action two years ago to recover $6,374,000 in damages for alleged deficiencies in machinery sold by Bagley & Sewall. Bagley & Sewall immediately pressed a countersuit to recover an unpaid balance on the machinery.

Legal action on both sides was dropped after the recent agreement was reached by attorneys for both claimants.

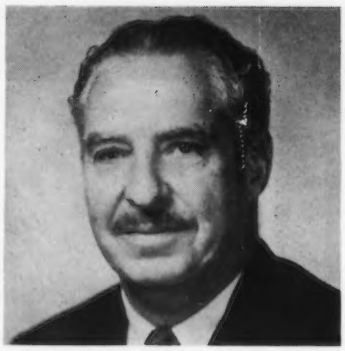
Hans Stauffer

STAUFFER CHEMICAL CO. appointed Hans Stauffer as executive vice-president. Mr. Stauffer has been a vice-president and general manager of the Company since 1941.

C. R. Maranville

WORTHINGTON CORP. has elected C. Robert Maranville, formerly assistant to the works manager of the Holyoke, Mass. plant, assistant treasurer of the corporation.

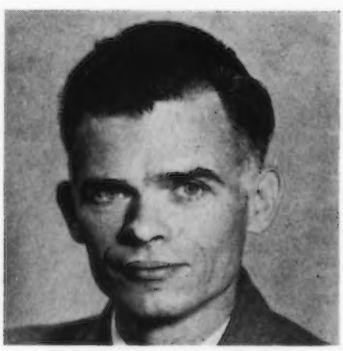
Mr. Maranville has been associated with Worthington for the past 16 years. First employed in the comptroller's office at the Harrison, N. J. headquarters, he was transferred to the Holyoke plant in 1937. There he has served successively as office manager, works comptroller, and assistant to the works manager.



Dwight Richards

OLIVER UNITED FILTERS INC., of New York, Chicago and Oakland, manufacturers of filters, pumps, pulp screens, and other equipment, have appointed Dwight Richards as director of engineering, effective October 1st.

Mr. Richards has many years of diversified engineering - management experience in the field of heavy process and industrial machinery. Much of this work has been done in conjunction with the sales departments in making studies of industrial problems and machinery requirements. He has done extensive consulting work in several countries other than the United States. More than 100 basic machinery patents have been issued to him.



L. W. Armstrong

BIF INDUSTRIES has established a Service Center in Seattle, Wash., to handle service problems of Builders-Providence, Inc., and Omega Machine Co.

The territory covered by the Seattle office includes the states of Oregon, Washington, and Western Idaho. Provinces of British Columbia and Alberta in Canada.

L. W. (Pete) Armstrong is in charge of service. The Seattle sales office and service center is located at 913 Arctic Building, Seattle 4, Wash.

A.P.W.

ONLIWON

INDUSTRIAL
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TISSUE

Fred Rudge

Gives his opinion on the question

Can Foremen "Teach Economics" to Employees?

ABOUT THE AUTHOR—Fred Rudge is a partner in the firm of Fisher, Rudge & Neblett, a management consulting service to over 70 corporations in the field of industrial, labor and community relations. He is the author of "Economic Information for Employees," published this year by National Foremen's Institute, New London, Conn. He also wrote the section on Plant Community Relations in Funk & Wagnalls' "Reading Course in Executive Techniques."

Mr. Rudge, who went to Haverford College and Columbia University, was founder and president, from 1932 to 1945, of William E. Rudge's Sons, a printing house specializing in corporate annual reports and other public relations brochures. He is a director and secretary of the National Management Council, of the New York Assn. for the Blind, and of the Dalzell Towing Co. of New York.

When it comes to teaching economics to employees, the foreman is the most important member of the "faculty." He doesn't have to wear a cap and gown or polish up on lecture-room techniques. Call him "teacher" or "professor" and he'll probably spit in your eye, at least metaphorically speaking. Yet the chances are he already is imparting economic information day in and day out to his subordinates. Helping him tell more—both by giving him the required data and by encouraging workers to ask questions—is the key to success in making them understand the economic forces which influence company behavior.

Without departing from his normal relations with subordinates, the supervisor has abundant opportunity to enlarge his teaching role. For example, the people whom he directs look to him for instruction in their duties and for the "reasons why" behind directives. He strives to win their cooperation in recruiting new employees, or by reducing turnover, absenteeism and lateness. He is constantly promoting productivity, cost control and safe work habits, and probably finds it necessary from time to time to explain pay rates and incentives. Economics enters into all such things and each provides a "hook" on which to hang an economics "lesson." be it only a few sentences long.

For example, a worker's question about the incentive system opens up the whole area of costs and prices, of productivity, company security and employee job security. A drive for better quality is related to such questions as competition, free markets and the buyer's right to choose some other product—or not to purchase at all. The question of a second shift, or a layoff, goes back to such economic issues as supply and demand; the cost of expansion as compared with increased use of available facilities; the relation of the individual company to the economy as a whole, and so on.

This man-to-man approach is usually far more convincing than printed material or formal instruction, although these have a part in the all-over economics education project. They supplement, rather than replace, the word-of-mouth communication which experience shows is the all-important factor in efforts of this kind. To be effective, communication must be a two-way process, with those on the receiving end in a position to inquire and participate. An exchange of information is always better than a one-way stream. Foremen are uniquely situated to assume a vital communications role because they stand between middle management and the rank-and-file.

But before expecting supervisors to pitch in and start teaching, management should check up on certain things:

1. Has the right kind of material been compiled and given to the foremen for them to pass along?
2. Are the supervisors prepared to undertake the job?
3. Does the company back them up with other forms of training—direct communications from the management, employee meetings with top executives, etc.?

Company Facts are Best for Program

Both foremen and their prospective "pupils" shy away from global economic trends and theories, which usually prove too general and too dull to hold interest. On the other hand, employees at all levels are usually avid for information about the company, and on why the management follows certain policies. The most successful economic education programs are those which have concentrated from the start on examples taken from the company's own history, development and experience. Rather than being designed primarily to "sell" the private enterprise system, they are beamed at helping workers grasp the economic "facts of life" *about the company and the industry,* including why the management pursues the course it does in conducting operations.

The foreman who has such facts at his command is giving employees what they really want to hear—facts which have a bearing on their job security, their opportunities for advancement, improvement in their social status, and the like. The rank-and-file craving for such information is demonstrated whenever anything unusual happens in their plant, because they naturally ask "How come?" when things aren't running as smoothly as they should. If a schedule is changed, and short runs interrupt production, they usually want to know why. They are quick to com-

The foreman doesn't have to wear a cap and gown to be an economics teacher.

plain if maintenance is cut in slack times. "Why let things go," they ask, "until business picks up and the plant is too busy?" They criticize the sales department if orders must be completed on short notice—or if they come in too slowly. They also tend to regard essential accounting and engineering personnel as so much extra overhead. "Why are we supporting all those guys?"

Direct answers naturally must be given to such questions, but piecemeal information is not enough. There should be a backdrop of rounded information against which to view specific problems. Such perspective is provided when the economic education program gives the history of the company—how it was started; where the money came from to finance early operations; how it is presently financed; the competitive position of the company and how its products are marketed; the various factors which combine to set the prices of what the company sells; the part that profit plays in keeping the enterprise going; the functions which management performs, including the need for decision-making and for management know-how and specialization which make sound decisions possible.

Few companies have this kind of information available at the time the decision is made to launch an economic education program. It has to be gathered from various sources, including the firm's own executives, its sales department personnel and the trade association to which it belongs. Some, but not much, can be dug from textbooks. Of course, the facts compiled should be screened for accuracy by qualified management personnel. When it *is* gathered, the initial step is to *educate the foremen* economically: the rest of the program should rest until the supervisors are ready to undertake their teaching role.

Preparing Foremen for Economic Education

There are many reasons why special efforts must be made to give information and facts to the foremen. The average supervisor is separated from top management by several layers of executives, and this tends to insulate him from the economic understanding possessed by the highest group. In addition, attitude surveys among supervisors have often shown that foremen have not been admitted to the "inner circle" of management, even though they speak for management in their departments. In many cases, the foreman's position and importance must be enhanced, to give him greater authority and status in the minds of the rank and file. Obviously, foremen must be recognized as leaders if what they say is to win acceptance from others.

Foremen should also have a voice in shaping whatever printed material and other supplementary communications are to be distributed to employees as part of the program. If the foremen are built into the program from the start, via group meetings and conferences with management, they will contribute mightily to its development. Of course, everything distributed as part of the project should be coordinated with the supervisors' own efforts.

Experts agree that the most fruitful prelude to active economic education is the "ground preparation" phase, in which three important developments take place:

1. Action to put the foremen in position to communicate.
2. Action to *inspire* the foremen to communicate—to make them want to take part in the program.
3. Action to create a desire, on the part of the employees, for information on economic questions.

With this three-way approach begins a truly effective program of economic education.

Overcoming Foreman-resistance to "Teaching"

Nobody in his right mind expects foremen to take to economic education as the proverbial duck does to the barnyard pond. The following colloquy shows how the typical foreman reacts to the idea—and the kind of answers needed to win him over:

Foremen should have a voice in shaping the economic education program.

Question—You want us foremen to get more information to our people? Okay! That's fine. But I'm the wrong guy: I'm not equipped to pass around information of that sort—even if I had it, which I don't.

Answer—Your top management is liberal and progressive and does want to communicate with its people. The facts are being gathered and interpreted right this minute. But you are the person who can make or break the effort. Why? Because you *are the management* in the minds of people who report to you, and you have dozens of opportunities every day to tell why top management does thus and so about particular situations. You are in a position to give the 'reasons why' about all kinds of things. Remember, one talk on a man-to-man basis is better than fifty pounds of the best printed matter in the world.

Question—What bothers me is why we should make the attempt. Employees don't care what the top brass think. All they are interested in is their pay—how much there is in the envelope at the end of the week.

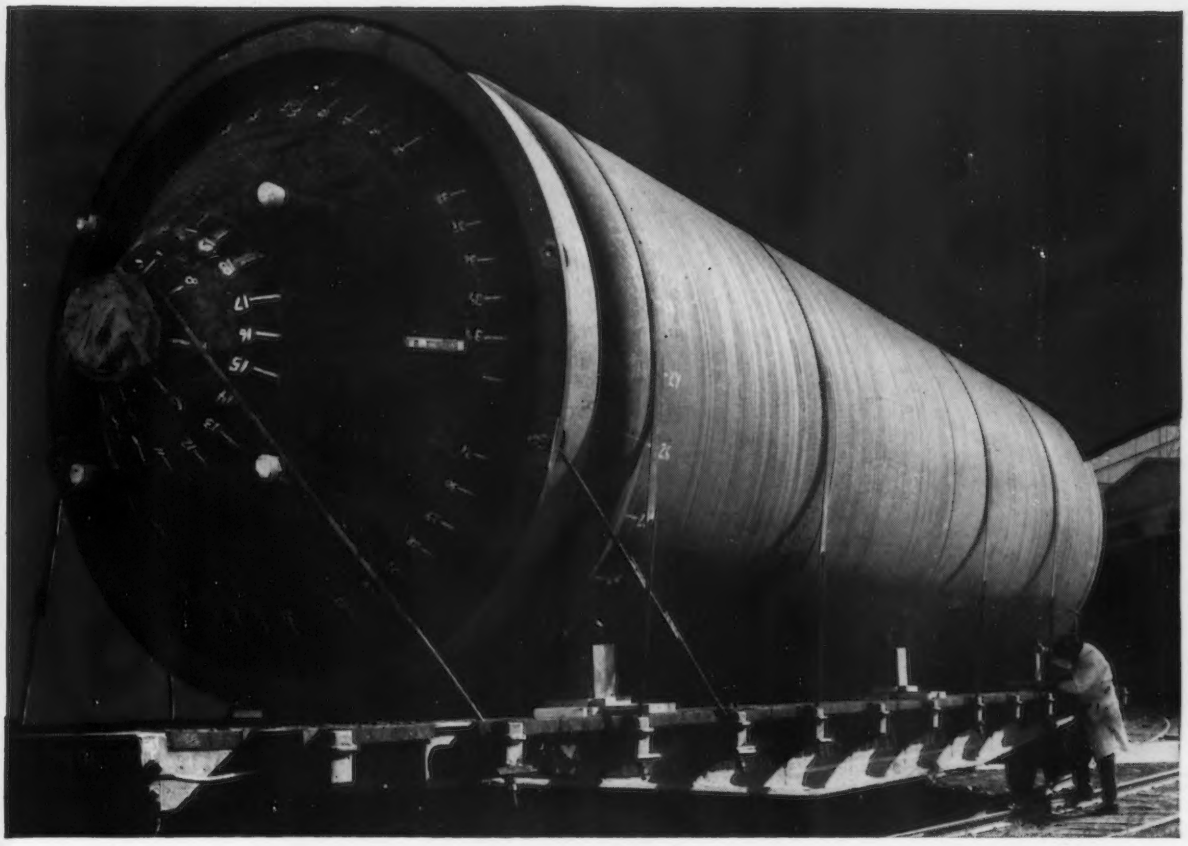
Answer—That may apply to some, but it isn't true of everybody. Job satisfaction goes beyond being paid a proper wage. You know yourself that people aren't just satisfied to take an order and carry it out. It has to add up in their minds. The trouble is, it won't unless the people know something about the business and how it operates—and also about the basic economic principles that underlie about 90 percent of management's decisions. You have to know the ABC's of business economics to discuss them intelligently.

Question—Maybe so, but how can foremen teach economics when we still haven't solved the simplest problems of explaining? I mean questions like: Who has the authority to make decisions? What are our employee policies? Why don't employees who make suggestions get thanked for them, let alone being paid for those adopted?

Answer—All those things are part of a good two-way communications system—and getting one going is an important part of this economics education project. Management is going to tell *you* "why" about such matters, so you can either answer such questions on the spot or else know where to turn to get the information.

Question—I have twice as much work as I can handle right now. On top of that, how do you expect me to do a teaching job?

Answer—The more you lead your people, the more cooperation you'll get, and the lighter your own work load eventually will become. Good leadership means telling why; and that includes explaining company policies and



10′ 7″ diameter, 42 feet high sulphate digester, weighing 130,000 lbs., made of Oxygenated Rimming Steel for corrosion resistance, leaving A. O. Smith Plant in Milwaukee.

Oxygenated Rimming Steel is a steel in which the rim is lower in carbon content than the core. This increases oxygen content in the rim and extends the corrosion life of the steel.

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A. O. Smith Research in Metallurgy and Welding makes another significant contribution to the Paper Industry . . .

Carbon steel with low silicon content, oxygenated by rimming, to obtain desired corrosion resistance, now becomes ideal material . . . in the hands of A. O. Smith technicians . . . for fabricating sulphate digesters.

Digesters made of this special steel, 2 to 2½ inches thick, were *first* developed by A. O. Smith. They have been in service for over two years with American Box Board Company, Crown Zellerbach Corp., Longview Fibre Company, Rayonier Incorporated, Union Bag & Paper Corp., West Virginia Pulp & Paper Company, Weyerhaeuser Timber Company.

Successful application to sulphate digesters is due to the investigations by the A. O. Smith metallurgical research laboratories, in cooperation with the A. O. Smith welding research laboratory.

Seams are welded with A. O. Smith electrodes that have proven to have the same corrosion resistance as the special parent metal . . . thus giving assurance of uniform corrosive characteristics throughout the digester.

Consult us on your process equipment problems. Contact the nearest A. O. Smith district office listed below.

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economic reasons as well as telling a particular subordinate why you are giving him a certain order. This isn't a classroom proposition—it means just a few minutes a day talking to your people as occasions arise.

Question—I don't want to sound selfish, but—what's in it for me?

Answer—The best pay-off of all—a better chance of promotion. Learning about the business and about economic principles is the high-road to more effective leadership. The more you know about the company, the more intelligently you will be carrying out your orders. The suggestions you make will become more and more valuable, and you will become better and better equipped to take on increased management responsibilities.

Question—Sounds good, but—do you really expect a program like this to change employees' ideas about how good, or how lousy, our business system is and what should be done about it?

Answer—It isn't your job to make people's minds up for them. The objective is to give *factual evidence,* so that people can make up their own minds—and do it intelligently. Your job is to take facts you *believe in and accept,* and then pass them along to your people.

Employees Crave Information

Many foremen fail to realize how much employees crave information about the company, about "the way they stand," about the reasons for changes they see taking place. Attitude surveys among the rank-and-file frequently bring out complaints of being "left in the dark." How strong the urge for information is can be seen from the following typical statements made to our researchers by employees:

"Everything around here is hush-hush. You hear things a dozen different ways before it finally becomes official."

"I think meetings would help. It would give us a chance to hear what the company is doing."

"Nobody seems to know what's going on. The supervisors may know, but they're always too busy getting out the work to talk about such things. Sometimes I think they don't know the answers, either."

Training is Required

Supervisors, as a rule, don't become good communications experts by chance. They usually need training in how to put ideas across. Equally important, they have to get "in the stream" of company information, so they will understand the policies and practices of top management. Companies sometimes find at this stage that they have no adequate body of written information: a regular program of foremen conferences provides the incentive for organizing such data and filling in the gaps. It is not unusual for a whole new series of booklets, including employee manuals, standard practice instructions, safety reminders, etc., to emerge as a by-product of the course.

The man-to-man approach is more convincing than printed material.

The principles of sound communications cannot be learned in one easy lesson. They call for training and for practice until it becomes second nature for the foreman to remember, among other things, that

1. *Words may be confusing.* What seems clear to the speaker may not be so to the listener.
2. *Two-way communication is vital.* The supervisor has to listen, to answer questions, to stimulate discussion, as well as "tell" the employee.
3. *Intent is often more important than words.* The supervisor needs to remember constantly that the listener may be saying to himself, "That's what he *says,* but what does he really *mean?*" Words that are contrary to the listener's experience may be clearly stated, and yet carry no weight.
4. *Trust is vital.* The foreman who has not won the respect of his people cannot expect much success in putting across an idea. He may even do more harm than good.
5. *Know your man.* It helps to know the individual's personal problems, his experience and his point of view. He may even belong to the tiny percentage in almost every group who are "ag'in everything." If so, special treatment may be in order.
6. *Stick to the facts available.* A statement of fact is usually more impressive than a statement of opinion. Therefore the supervisor should find out the real "reasons why" before attempting to persuade others.
7. *Be prepared to find out.* If the right facts are lacking in a particular case, the best course is to say "I can't answer that question"—and then obtain the information and pass it along to the questioner.

Checking up on Progress

At intervals during the program, its progress and effectiveness should be measured, and reports made to top management. Depth attiude research among the foremen themselves is an indispensable tool. The foremen conferences can also be utilized to evaluate the project. Like a faculty meeting in the public schools, it helps to get the "teachers" together and sound out their reactions to the course and ascertain how well the "students" are absorbing knowledge.

This is part of the *foreman participation* in the program—and in the management—which spells the difference between successful economic education for employees and "just another idea from the Boss."

Use Arsenic to Fight Teredo Worm

An important item of research affecting the timber industry is reported in British Columbia. It is a new arsenic solution designed to fight the teredo worm. This will kill the worm in 24 hours and it is believed that it could be sprayed over large Davis rafts and would become so diluted from the sea that it would not affect fish in the waters through which the raft is towed. This arsenic solution, it is believed, would save the B. C. lumber industry millions of dollars a year as the worms bore into pilings, ship timbers and log booms and logs which are lying in salt water for two months or more are particularly vulnerable.

The arsenic remedy consists of a solution of one part in 50,000 of water and was developed by Clarence Fulton and Dr. P. C. Trussel of the Biology division of the B. C. Research Council. The problems remaining to be solved in this connection are how to apply the solution to the logs and how to make it stay on long enough to be effective.

The work has been concentrated on the Davis raft up to now. This is a big raft that takes up to six weeks to assemble and as it can only be moved in good water it is often four or five months from assembly starts until it reaches the mill. During this period it has been found that the teredo worm has made savage onslaught on the logs. Flat rafts, on the other hand, can be moved to fresh water or into mills before the teredo secures a chance to attack the logs.

Seaman Sells Tympan Business to Jobber Mfg.

Jobber Mfg. Corp., Milwaukee, Wis., recently purchased the entire tympan paper business from the Seaman Paper Co., Chicago, along with its trade name "Precision Tympan."

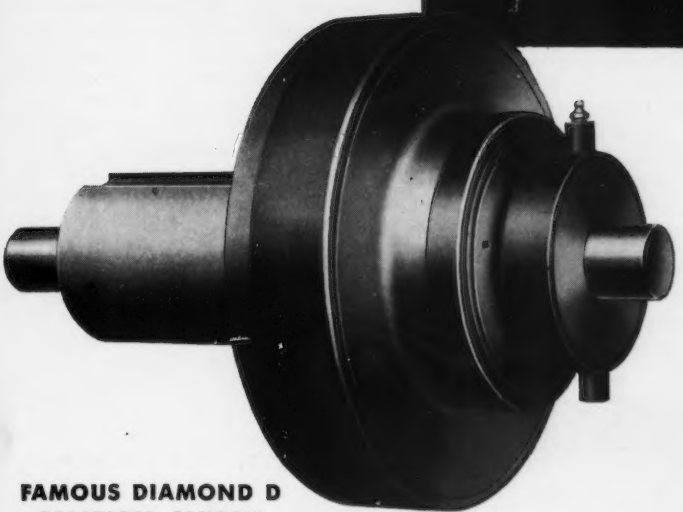
The company also arranging to produce a line of bags for merchant distribution.

PAGE(S) MISSING

ROLLING GRIP
FRICTION CLUTCH
"NO TOGGLES!"
1/3 to 21 H. P. CAPACITIES

DODGE FRICTION CLUTCHES

Proved in thousands of industry's toughest jobs!



FAMOUS DIAMOND D FRICTION CLUTCH *CAPACITIES UP TO 470 H. P.!*

Look to Dodge for the clutches to meet your specific needs. Dodge leadership in the field of mechanical power transmission is strikingly evidenced in the advanced design and engineering of a complete line of friction clutches, in a full range of sizes with capacities from 1/3 hp to 470 hp.

ROLLING GRIP FRICTION CLUTCH

New and simplified design gives new ease of control with positive drive and extreme ruggedness. There are no toggles! Instead the mechanism shifts smoothly on hardened steel balls—and has the positive grip of a wedge. (Operating parts enclosed for safety yet quickly accessible for service). Available from distributors' stocks in two types—Bolted Plate or Gear Tooth Mechanism in sizes from 1/3 hp to 21 hp at 100 rpm.

DIAMOND D FRICTION CLUTCH

Built with the stamina for grueling service, this rugged clutch has a world-wide reputation for dependability. It's compact, too—completely enclosed in both engaged and disengaged positions. Adjustment is simple—an Allen wrench at one point does the job. Available in single, double or triple friction plate design in several types of construction. Capacities from 21 hp to 470 hp at 100 rpm.

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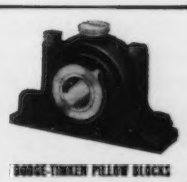
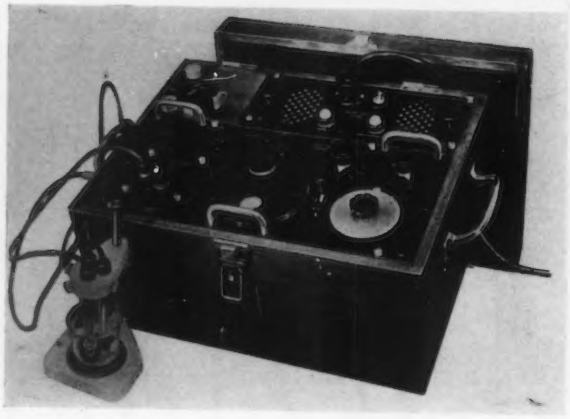
SEALED-LIFE V-BELTS AND TAPER-LOCK SHEAVES

TORQUE-ARM SPEED REDUCER



DODGE-TIMKEN PILLOW BLOCKS



pH Meter

The electrical measuring circuit is designed to render the readings completely independent of valve characteristics and supply voltage variations; under normal conditions of operation there is no possibility of a false reading.

Precision built, compact, robust and portable, this instrument is being used increasingly by the paper trade. Overall dimensions are 12″ high by 10″ wide by 8″ deep and weighs 14 lbs. complete with clamp and batteries. Marconi Instruments also produce a "Moisture-in-Timber" meter which provides a rapid and reliable method of measuring moisture content of many different types of timber.

The pH Meter

Marconi also manufactures a pH meter which is a highly sensitive electrometer of very high input resistance, arranged for a.c. mains operation and suitable for the measurement of small potentials developed by electro-chemical action. It is primarily designed for the determination of pH with the Marconi Instruments glass - electrode and temperature compensating system as part of the equipment; the control dial is therefore directly calibrated in pH units as well as in millivolts.

Other electrodes can be used with the instrument when it is switched to operate as a millivoltmeter, so that the rH or corrosion-potential measurement can be made.

A calibrated dial and an additional switch control a standardized potentiometer circuit, the e.m.f. from which is applied to the electrometer valve in series - opposition to the e.m.f. to be measured. The valve in turn operates a moving coil balance indicator which becomes a sensitive galvonometer. The potentiometer is standardized, by a simple adjustment, against a Weston normal cell within the instrument.

When the instrument is set up for making direct pH measurements, the temperature compensator supplied with the electrode system must be connected and immersed in the solution under test. The function of the compensator is to regulate automatically the value of the potentiometer e.m.f. so that the true pH of the solution at the working temperature is indicated. Unwanted potentials generated in the cell chain (e.g. the glass electrode asymmetry potential) are balanced out by an e.m.f. within the instrument.

To obtain a high degree of stability, the electrometer valve is mounted in a closed chamber, and the output from the Mains Unit is arranged as part of the instrument to produce the greatest possible independence of charges in a.c. mains voltage. In the Mains Unit, the necessarily smooth d.c. supply for the measuring circuit is obtained from a bridge - connected, full-wave metal rectifier and is stabilized by a shunt-connected gas-filled relay. The latter is protected during the initial warming of its cathode by a thermal delay switch whose operation is indicated by the extinction of a warning lamp on the panel of the instrument.

Static Charge Tester

The pH electrode equipment, which includes beaker, temperature compensator and two bottles of buffer tablets, is stowed in a compartment at the left-hand side of the instrument. The electrode assembly itself comprises a glass electrode, a calomel reference electrode and a beaker supported by a metal stand. The electrode system is mounted on a collar of insulating material sliding on a supporting rod and has a locating device which prevents the electrodes from being lowered otherwise than directly into the beaker. The buffer solution tablets facilitate the preparation of solutions having accurately known pH values, the exact value of each batch being given on the label. One tablet yields 100 ml of buffer solution.

Static Charge Tester

A portable instrument for measuring electro-static charges was developed a few years ago, but recent developments in sub-miniature electrometer valves and other components have enabled the Baldwin Instrument Co. Ltd. to redesign and develop this instrument into a convenient form for general laboratory and workshop use.

The principle of the operation is that a small voltage, proportional to that being measured, is induced by capacitive coupling onto the grid of an electrometer valve. The anode current of the valve is measured by an indicating instrument, calibrated to read in terms of the inducing voltage divided by the distance separating its source from the instrument. The measurement is thus of voltage gradient, or volts per foot.

It consists of a pistol-like body and grip which contains the batteries, switches, adjusting rheostats, and the indicating instrument; a detachable cylindrical part corresponding to the pistol-barrel contains the hermetically-sealed electrometer valve, the capacity coupling plate, a gravity operated setting switch, and a sliding member controlling the sensitivity.

The instrument discriminates between fixed positive and negative potentials and alternating potentials. Accessories allow it to be used for the measurement of charge and of the resistance to earth or to an adjacent point of the object being investigated. The instrument is scaled up to 2,000 volts per foot. The adjustable sleeve is calibrated to give readings, X1, X10 and X100 times the scale reading. The quantity of charge which can be measured ranges from 1×10^{-9} coulomb/cm² to 3×10^{-8} coulomb/cm². The resistance is from 10^{7} to 10^{13} ohms

and can be extended to 10^{15} ohms with the addition of a 200 volt battery. The capacitance of bodies insulated from earth can be estimated by charge sharing from $5_{p}F$ to $0.2\mu F$.

These instruments are being used in British paper mills to investigate the potentials of paper which require coating. Since electrostatic charges cause dirt to collect, this practical method of measuring the frictional charges arising during manufacture is proving particularly useful in the production of paper for photographic purposes.

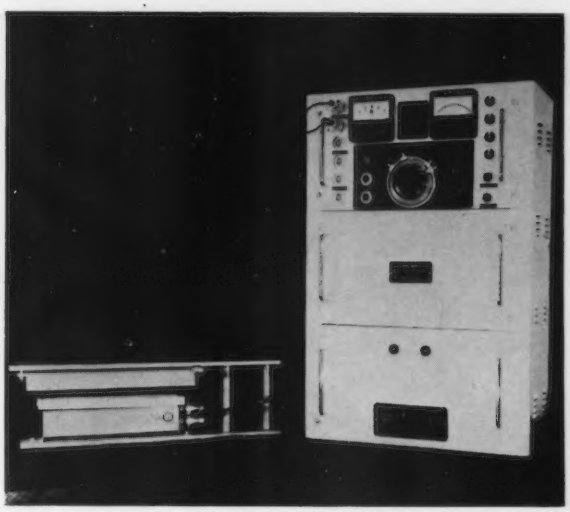
Radiation Thickness or Weight Gauge

The same company has an Atomat thickness gauge which has amply proved its usefulness as a production control instrument in the papermaking and converting trade. It is also valuable as a research tool to investigate the nature and origin of variations in thickness or weight per unit area of the product by showing up cyclic variations caused by roller eccentricity as well as other irregularities across and along the web.

The Atomat measures the weight per unit area of the material passed through it. The material does not make contact with the gauge, can pass through it at any speed or temperature, and does not acquire any radioactivity or charge.

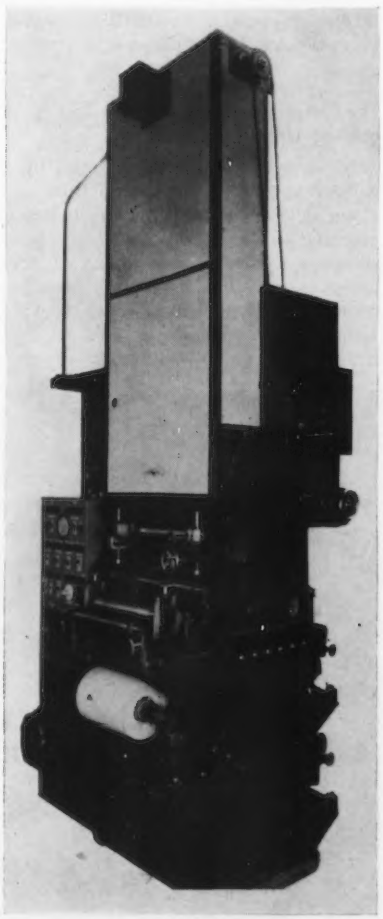
The basic design of the gauge grew from the fact that beta radiation is stopped by any substance in its path to an extent proportional to the mass of material it traverses. A source of radioactivity in a suitable container restricting radiation to the required direction is placed so that the radiation passes through the material to be gauged and falls on a detector. The detector is a sealed chamber containing air which becomes "ionized" by the radiation, in which state it conducts electricity at a rate proportional to the degree of radiation. The ionization current is exceedingly small and requires carefully designed electronic methods to measure it accurately.

In the Atomat the ionization current is amplified by electronic apparatus which can be relied upon to give accurate and consistent results. The radioactive source and the ionization chamber are mounted opposite each other, one on either side of the material to be gauged. The working clearance between the faces is usually about 1″ but can be more. The shape and area scanned by the gauge can be made to suit special requirements but a scanned area of 1½″ x 9″ is standard. The measuring head gives a reading by average over the area; so if readings are required to indicate variations across a width, it is necessary either to have several sources and chambers which can be switched into circuit or to make one source and chamber travel across the width of the material. All external surfaces of source and chamber are held at earth potential.



Thickness Gauge

The instrument itself can be placed up to 50 feet away from the sheet. There are two indicating instruments: one reads weight per unit area in any desired units or can be calibrated for thickness measurement of material of constant density. The other indicator shows deviation above or below a thickness or weight.



Laboratory Coater

Thallium 204 was the standard radioactive source, with a penetration of some 150 mg/sq. cm. More recently, other isotopes have become available, greatly extending the range of the gauge for heavier materials.

For paperboard, three measuring heads are usually mounted across the board at the dry end of the machine, and three more heads may be added at the wet end. A remote indicator panel with six indicators, displaying variations of actual weight (substance plus water) at all six gauging points, provides much valuable information for the correct control of the machine.

For papermaking, the gauge displays excellent stability when measuring paper above 40 or 50 grams per sq. meter at the dry end. On lighter papers and tissues the change in weight of the air in the measuring gap with temperature (approx. 2 grams per sq. meter per 10°C. temperature change) may introduce some drift or error if the temperature of the web and the surrounding air vary considerably. The whole range of weight normally encountered in the paper industry (20-200, or 20-300 grams per sq. meter) is covered by one standard model.

Coating and Impregnating Machine, Laboratory Size

This machine is designed for laboratory use with continuous webs of paper or fabric in a variety of coating processes employing synthetic resins and similar materials. It is suitable also for use with baryta, china clay, or

Autolift

other pigments in their appropriate suspensions, and for the paraffin wax and bitumen processes. It is equipped for single or double-sided coating controlled by pressure rollers, for single-sided coating controlled by wire equalizer rods or scraper bars, and for impregnating under the control of pressure rollers or round scraper bars. The coating heads are adaptable for roller coating, brush coating, impregnating or spreading. Provision is also made for two- and three-ply combining. The rollers, coating trays, and impregnating tanks may be electrically heated and thermostatically controlled, and the control panel equipped with indicating lights, switches, plug sockets and speed indicators.

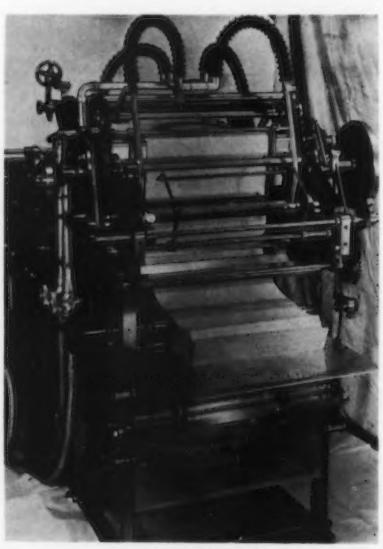
The coating speeds may vary from 5″ to 160″ per minute and the web of material up to a width of 12″. The drying tunnel is heated by air introduced by a flameproof motorized fan and passed through steam coils. Temperatures up to 120°C. may be maintained with steam pressures of 120 lb. per sq. inch. Electric heaters may be used if preferred.

The Soldan Autolift

This Autolift exploits the need which exists for a mechanism to keep the top of the pile at a constant level when operators are feeding production machines from material stacked on stillage boards. With the Autolift, the operator does not have to stoop and lift material on to his machine as the stack becomes depleted. Consequently, he loses no time through the fatigue and delay of bending. Also, when operators work from old-style benches, material has to be handled on to the benches. Now it can be trucked directly onto the Autolift by standard hand trucks. Similarly, work coming off production lines can be loaded onto downward traveling Autolifts so that an easily handled stack can be trucked away.

The "W-J" Variable Size Zig-Zag Folding Unit

As is well known, the folding of a web of paper backwards and forwards at the delivery end of a rotary printing machine to form packs of continuous stationery presents a number of mechanical problems. These problems become more complicated when a wide range of sizes has to be folded. The usual paper troubles have to be contended with after the folds have been made in the web. These troubles have forced users of variable size zig-zag folders of conventional type to run their machines much slower for zig-zag folding than for re-winding.



Folding Unit

Common practice has been to fold as a separate operation, but with the new folding unit illustrated here, this has been overcome. The standard unit will zig-zag forms from 7¼″ up to 13″ in length, and this range of 24 sizes is covered by only three settings of adjustable parts. The first setting range is 7¼″ up to 8″, the second 8¼″ up to 9¾″, and the third 10″ to 13″.

Change of the setting range takes a few minutes only, but within each range no resetting has to be done. The rotary machine to which the folder is attached must, of course, have normal adjustment to alter the form length. An elevator is used to bring the forms into correct folding position.

The actual folding is done by means of a vacuum, and special vacuum folding bars are provided to function without the use of tucker blades. Air is drawn through the perforations on which the fold is required and automatically causes the line of perforation to find its correct folding position; indeed, there is no need for accurate setting because the vacuum folding system will fold correctly even if the perforation is 1/16″ out of true folding position. Should the setting of the folding unit be so incorrectly made that the line of perforation is not within reasonable limits of the correct folding position, no sharp fold takes place and it is possible to make corrections by hand since the forms are not spoiled. This is of particular importance where the folds are numbered.

On long runs, delivery is made onto a pile delivery table, but if the forms have to be separated frequently (i.e. cut off in short lengths) separation can be accomplished on the band delivery with which the unit is also fitted.

The unit will zig-zag fold at the speed of the machine to which it is attached, and there is therefore no need to slow up the printing machine. Elimmation of the tucker bars makes it possible to slightly offset the cross perforations to "square up the pack" from a bad web without complication in the folding unit. Makers of continuous stationery will appreciate freedom from mechanical control imposed by tucker blades; also the usual fine adjustments required with tucker blades are avoided, not to mention the loss of time in setting the blades and spoilage of jobs until the correct setting is found.

The unit is self-contained, mounted on wheels, and chain-driven from the printing machine.

Britain's Paper-Making Machinery Industry

"Balance of Payments" is becoming an all too familiar phrase to the British industrialist for in it lies the threat of a lower standard of living, or inflation, or the financial collapse of the country.

In much of the country's trade, exports are less than imports, making for an adverse balance. In the exports of pulp-making, board-making and paper-making machinery, however, there is a different story to tell. These exports not only exceed by far any relative imports, but they are gradually and surely increasing.

During the first six months of this year exports totaled 3,594 tons and were valued at £1,370,078. This compares favorably with the same periods in 1951 and 1950 when the figures were respectively 2,736 long tons at £1,029,722 and 2,626 tons at £886,619. These figures include finishing machinery, but exclude paper-machine wires and machine felts.

Imports are only a fraction of the export figure. For one month for instance (that of July), imports were only 23 tons valued at £9,373. For the same month exports were 576 tons at £225,126.

British paper-making machinery suppliers are able to apply the accumulated experience of old-established firms to the solution of problems created by the demand for faster-running machines and more economical production.

The big newsprint machine producing paper at a speed of about 1,500 feet per minute is a mammoth engineering job, but it is machines like this that have been shipped to Australia to extend her relatively new newsprint industry. The smaller machines on which fine papers and boards are made at slower speeds are also found in most countries where paper is made.

Manufacturers of auxiliaries essential to papermaking — machine wires, felts, calenders, slitters and reelers — have also exported their products to many countries overseas. In the closely related field of paper converting, they have designed machines to which refinements are constantly being added: to coat, to laminate, to fabricate cartons, bags and paper tableware such as doilies, serviettes and cups.

Bold attempts too have been made to break into the dollar markets with these special machines which until recently had been the home ground of the U.S.A. and Canada. It is in Canada, however, that these machines have been particularly well received. In a comprehensive survey of the Canadian market for pulp and paper machinery, a government department reported that the market was not an easy one since Canadian production is highly organized and capable of supplying most types of equipment, but that it was at present unable to keep pace with demand.

British manufacturers, of course, have a great incentive in the need to earn dollars and it is thought that the best prospects lie in the field of fine paper making machines. An essential element in the Canadian market is the servicing of machinery, and the report draws attention to the fact that one of the most successful U.K. pulp and paper machinery manufacturers trading with Canada has established a Canadian subsidiary company and has acquired an interest in a Canadian manufacturing company for the purpose of providing after-sales service.

The fruit of this enterprise has already been a substantial order for a complete papermaking machine for a new Canadian mill.

Another field in which British research has established a leading place is in the development of processes and equipment to utilize the straws and grasses which can usefully supplement the world's stock of papermaking fibers. In India there was recently inaugurated the first plant in the Commonwealth to produce bleached paper pulp from bagasse for which a British firm supplied the equipment.

On these lines much research has been done in laboratories and pilot plants to test the suitability of tropical and other fibers for papermaking and in this way the infant paper industries of some of the Dominions and Colonies have been greatly assisted.

In terms of production, the extent of the British papermaking machinery exports drive could not be better expressed than in that of one firm—one of the largest of this country's producers. This firm, Walmsley's of Bury, with its associated firms, has 199 complete papermaking machines to their credit and of these, 80 were supplied to customers abroad — Newfoundland, Canada, Australia, New Zealand, Tasmania, India, Norway, Sweden, Finland, Russia, Belgium, Denmark, Holland, France and Spain. The machines range from those designed to manufacture tissues and airmail papers through the paper range including newsprint, kraft, fine printings and writings to the heavier wrapping papers and to the various multi-ply boards of all descriptions. In the last 20 years, it is claimed, this firm and its subsidiaries have made the largest M.G. machine, largest board machine, largest tissue machine and largest newsprint machine. These are world records and were delivered with their various ancillary and auxiliary equipment.

In the experimental field, machines are being developed to cope with the advances made in waxed paper. Printing waxed papers can now be colored into anything up to four different colors. Modern machines too can produce waxed papers either plain or printed, hot-melt coated or laminated to be used as wrappers for foods, soaps, chemicals and other similar products. These papers are easily handled on high-speed automatic packing machines.

Dutch Strawboard and Paper Industry Representatives Making U. S. Studies

A five-week study of strawboard and waste paper utilization and research in the United States is being made by twelve members of the Dutch strawboard and paper industry. The study trip is sponsored by the Mutual Security Agency under its productivity and technical assistance program.

Because strawboard and waste paper products can be made cheaply and in volume, the Dutch are seeking know-how that will enable them to produce efficiently such articles as cartons for food or clothing, corrugated board, hardboard and softboard, and many other building materials.

That this industry can contribute to defense is shown by the fact that one of the 23 Dutch plants in this industry has developed its production sufficiently to obtain a contract from the U. S. Air Force in England for softboard to be used as insulating material for airplane hangars, and for corrugated board to be used for containers.

Because of recent import restrictions by other countries, new markets must be developed by the industry, by creating new products which can be manufactured as cheaply as possible.

The 12-man team, which includes management, technical and labor representatives of the Dutch industry, is studying in this country various chemical and mechanical processes for pulping straw and waste paper, strawboard and papermaking machinery, research in straw processing and labor-management problems.

Accompanied by Joseph Koski, MSA Project Manager, the Dutch team is visiting plants, research laboratories, trade associations and labor unions in New York, Michigan, Ohio, Wisconsin, Illinois and Missouri.

Leader of the team is Derk Landweer, owner-managing director of the Scholtens Board and Paper Mills, Groningen. Other members are:

Frits Muller, director, Netherlands Experiment Station for utilization of straw, Groningen; Hendrik Albers, member of the board, General Labor Union, Amsterdam; Jacob Brouwer, efficiency engineer, SCMAT, Amsterdam; Petrus Buykx, member of the board, Catholic Labor Union; The Hague; Jan de Haan, paper maker, de Eendracht Strawboard Mill.

Also, Wouter de Muinck Keizer, owner-managing director, Hollandia-Coeverden Strawboard Mills, Dalen; Roelof Hellemans, technical manager, Beukema & Co., Board Mill, Hoogezand; Aelko Mulder, foreman, de Vryheid Strawboard Mill; Veendam; Jan Olthof, managing director, Erica Strawboard and Paper Mills, Pekela; Herman Hooft, technical manager, Northern Wallboard Industry, Hoogezand; and Jan Van der Veen, assistant technical manager, Cooperative Cardboard Factory, Oude Pekela.

LITERATURE

Attachments for Your Caterpillar Diesel Engine. (Booklet 30338) Contains illustrations of complete selection of attachments, described to show where used and what they do to provide a well-planned engine installation. Caterpillar Tractor Co., Peoria 8, Ill.

Foxboro Temperature Recorder Data. (Bulletin 447) Includes technical data, illustrated sales copy, installation charts and diagrams. Foxboro Co., 36 Neponset avenue, Foxboro, Mass.

Generating Power and Profits. (Booklet 30-249) Describes how Diesel electric generator sets can be tailored to meet almost any power need, various applications, operation and fuel consumption and shows testing in progress. Caterpillar Tractor Co., Peoria 8, Ill.

Hills-McCanna Force Feed Lubricators. (Catalog L-52) Contains illustrated sales copy of force feed lubricators for all types of machinery available in capacities from 2 pints to 32 with one to 24 feeds per unit; also sectional drawings of models ET and MB. Hills-McCanna Co., 3025 N. Western avenue, Chicago 18, Ill.

Industrial Turbine Generators. (Booklet B-5418) Describes characteristics of six principal types in terms of electrical power and process steam each can deliver; also photographs and installation data on turbine application in the paper industry. Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa.

Metallizing Saves Money. (Bulletin 54) Contains information on tool that can rebuild nearly any machine part by applying steel, stainless, bronze, or nearly any other metal. Also offers 285-page Metallizing Handbook for $1, regular price $3, and free copy of Gun Instruction Manual. Metallizing Engineering Co., Inc., 38-14 30th street, Long Island City 1, N. Y.

The Niagara Pioneer. (House Organ) Features "Made To Be Destroyed," an article on prevention of rusty water and corrosion of hot water tanks by use of magnesium rod, technically known as galvanic anode, designed in link-type rods to simplify installation in existing water heaters. Niagara Alkali Co., 60 East 42nd street, New York 17, N. Y.

Package Laboratory News. (Booklet, Volume 11) Illustrated sales copy of different types of packaging for improving safe delivery and display uses. Also offers to supply 14-volume Little Packaging Library covering efficient shipping, packaging methods, etc. Hinde & Dauch Paper Co., 407 Decatur, Sandusky, Ohio.

Paper Trade Terms. (Book, Pocket Edition) By William Bond Wheelwright, contains definitions restricted mainly to commercial paper terms; also mechanical definitions which may be helpful in clarifying certain common terms used in sale and purchase of paper. Leatheroid binding, gold-stamped. Price 75c. Obtainable from Callaway Associates, 172 Summer street, Boston, Mass.

Purchasing Procedures That Save Time and Money. (Booklet X-1202) Outlines time and money procedures for fast, precision purchase action; capsule survey of important information for efficient operation; flow chart comparing merits of new traveling requisition and illustrating reduction of paper work and simplification of routines. Remington Rand, Inc., 315 Fourth avenue, New York 10, N. Y.

Tall Oil. (Bulletin 11) Discusses flotation principle, collectors, modifiers, frothers, flotation plants, various mineral flotation, the principle as applied to recovery of fiber and pigments from paper mill waste white water and reclamation of oils from waste waters. Lists names of previous Tall Oil bulletins. Tall Oil Assn., 122 East 42nd street, New York 17, N. Y.

Wood Waste Handling Systems. (Bulletin 652) Features step by step story on Fairfield bark handling system employed by paper and pulp mill in its power plant; also installation information. Fairfield Engineering Co., Marion, Ohio.

Trade Promotion Events Manual. (Book) Contains 300 loose-leaf pages of trade promotion material in leather 3-ring binder. Sub-divided into six categories contains details about promotions, names, locations of participating organizations, financing methods and costs and publicity methods. Price $4.00. Obtainable from Domestic Distribution Dept. Chamber of Commerce of the United States, Washington, D. C.

Conciliation in Action. (Manual) By Edward Peters, California State Conciliation Service gives step-by-step workings of office of conciliator and inside details involved in sequence of events leading to final management-union agreement. Also contains case studies for students taking labor relations and related courses. Cloth bound 270 pp. Price $4.50. Available from National Foremen's Institute, Inc., New London, Conn.

New Grants To Aid Forestry at U. of N.B.

To expand the facilities available to students who wish to study forestry, three major papermaking companies in New Brunswick will contribute $80,000 to the School of Forestry at the University of New Brunswick during the next five years. The University will receive $30,000 from Bathurst Power & Paper Co., and $25,000 each from New Brunswick International Paper Co. and Fraser Cos.

Pulp and Paper Lecture Course at U.B.C.

Pulp and paper topics for the benefit of students in Forestry at U.B.C., British Columbia, include the converter or "products" end of pulp and paper manufacture, the newsprint industry, dissolving pulps for rayon and acetate, the pulp and paper industry's growth in British Columbia, integration of manufacturing facilities, sulphate pulps from left-over wood, marketing of pulp and paper, community relations, and forest management.

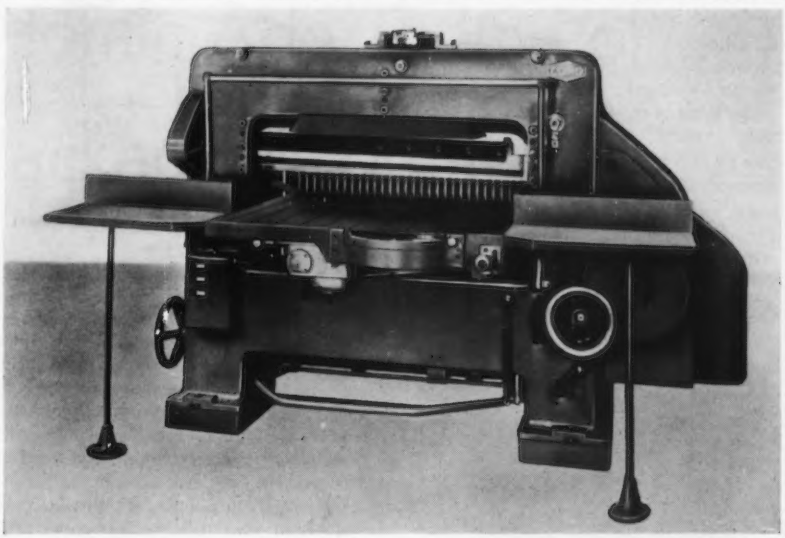
First lecture begins on October 23, 1952, carrying through to the final one on February 3, 1953.

Shor Family Sells Interest In Triangle Bag

The Shor family has sold its 50 percent capital stock interest in the Triangle Paper Bag Mfg. Co., 1301 Madison avenue, Covington, Ky., to the Deubener Bag Co., Inc., Indianapolis, Ind. Price paid for the stock was not disclosed.

Edward A. Jacobs will continue as president and general manager of the company. New officers elected as a result of the reorganization are Joseph B. Fine and Paul A. Lustgarten, vice-presidents; Max Jacobs, treasurer; and George H. Fee, secretary.

EQUIPMENT AND SUPPLIES



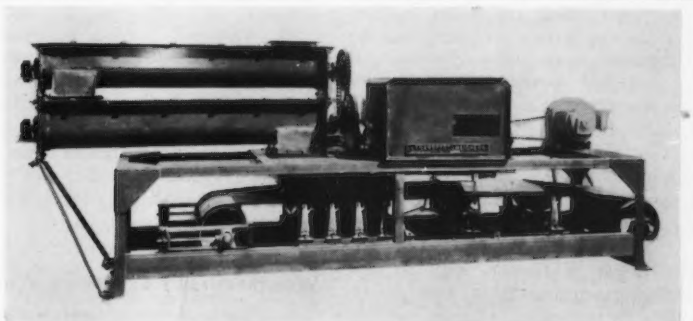
Como Automatic Spacing Cutter

The Ernest Payne Corp., 82 Beekman street, New York, N. Y., announces its appointment as Eastern distributor for the Como Automatic Spacing Cutter, made by Alvesta Industries of Sweden.

Designed for automatic cutting of paper, cardboard, leather, plastics, and similar materials, the cutter is made at present in 3 sizes: 31", 36" and 45". It is a completely automatic cutter with Automatic clamp, power back gauge and mechanical automatic spacer. The latter may be quickly set for any combination of automatic cuts.

Held renowned for its remarkably low price, its ultra modern design and its unusual features, the unit has been thoroughly field-tested in printing, bookbinding and carton plants under the most severe conditions, it is stated.

The cutters are on display for demonstration.



Feed Regulating Weigher for Fine Materials

Sintering Machinery Corp., Transportometer Div., 301 Sinter Avenue, Netcong, N. J., has designed an automatic, continuous-feed regulating weigher for fine materials. Named Transportoweigher, the new machine is designed to weigh and maintain the pre-set rate of feed of any finely-divided material used in the chemical and processing industries.

The illustration shows a 24" belt, unit designed to handle ground phosphate rock, 55%—200 mesh and weighing approximately 5 lbs./cu. ft. This machine will be operated at pre-set capacities between 10 and 24 short tons per hour. A knurled feed-rate setting handwheel mounted inside the dust-tight scale cabinet presets the capacity to any rate within the 10-24 tons/hour range. The integrator records on a direct reading tonnage totalizer the tonnage passing over the belt; the tonnage indicator, calibrated 0 to 100% of capacity, indicates the instantaneous weighing rate. The tonnage indicator can be calibrated in tons/hour, lbs./min., or any special scale reading, as desired.

To assure even feeding of the belt and to eliminate the effect of "skirt board drag" against the suspended weighing idler, the material is fed on the belt through two totally enclosed helix screw conveyors mounted one above the other on the frame over the belt. The ground phosphate is loaded by means of an appropriate chute or hopper into the top conveyor operating at 12-36 r.p.m., depending on the pre-set feed rate. The material then passes into the bottom conveyor, operating at three times the speed of the top conveyor, thereby assuring a steady, even feed to the weighing belt. The two conveyors are driven by a variable speed drive with integrally mounted pilot motor with an adjustable speed ratio of 3:1. The 24" rubber covered belt is roller chain driven at 120-360 r.p.m. by a ¾ h.p. totally-enclosed motor.

The equipment weighs, totalizes and regulates the feed with a ratd accuracy of 99½% or better, regardless of belt speed or tonnage variations. Units are available for a wide range of applications for installation on new or existing belt conveyors, and between conveyors and processing equipment.

Electronic Scales for Freight Cars

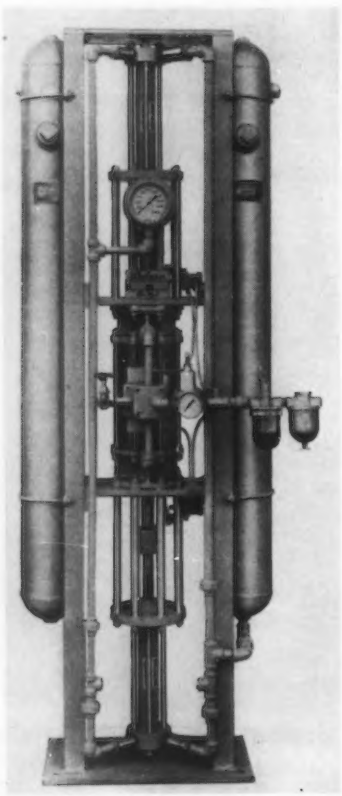
Modern electronic type scales for weighing motor trucks and railroad cars are now in production at Cox and Stevens Aircraft Corp., Mineola, N. Y., an outgrowth of 10 years' experience in the electronic weighing of aircraft, many advantages are claimed for the new equipment, also appreciable savings per installation due to the shallowness of the pit required.

Truck platforms are supported by four or six electronic weighing cells

depending upon capacity. These cells are but 6 inches high, are hermetically sealed, and contain permanent resistance wire strain-gage units designed to transmit the weight impulse to the indicator. No other equipment is required in the scale pit. Track scales normally require eight such weighing cells of a larger individual capacity, it is said.

Truck scale capacities range from 10 tons to 50 tons. Track scales go as high as 400 tons. All standard platform and weighbridge sizes are available in each category. For check weighing and modernization the electronic equipment may be installed in most existing track lever type scales.

Both visual and printed weights are offered in the MP-1 model. Standard tolerances are guaranted and weights in the 100,000 pound range may be printed and read in 5 pound increments. On 200-ton track scale equipment weights may be printed to the nearest 50 pounds.



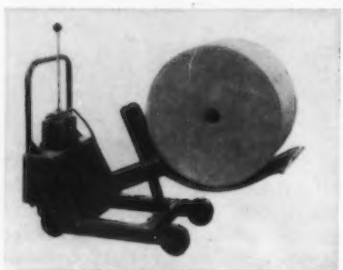
Air-Hydraulic Pumps and Power Units

Ledeen Manufacturing Co., 1600 San Pedro street, Los Angeles 15, Calif., announces a new series of heavy duty air-hydraulic pumps and power units designed to develop high fluid pressure from low air pressure.

The new units develop fluid pressure directly from plant air supply and are held suitable for operation of high pressure cylinders, clamps, valves, actuators and hydraulic presses; for safety installation and high pressure testing; for special hydraulic circuits requiring variable and adjustable pressure and volume; and for long pressure-holding cycles with quick approach without overheating or churning the hydraulic fluid.

Built as a complete package power unit, ready for installation, these pumps and power units are available in horizontal construction for minimum head room, and vertical construction for minimum floor space. Both pressure and volume are readily adjustable. Normal air pressure is suitable, and very little air is required.

Descriptive literature available.

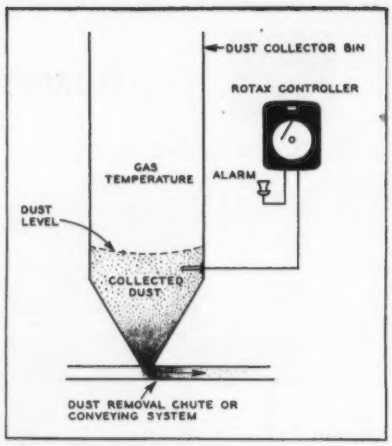


Hydraulic Roll Lifter

A Hydraulic Lifter for raising and lowering heavy rolls in restricted areas is available from Service Caster & Truck Corp., Albion, Michigan.

Believed to be the only model of its kind, the Lifter loads and unloads rolls of paper, cloth, aluminum, leather, rubber belting, etc., weighing up to 1,000 pounds from presses, looms and other roll fed machinery. It is designed to protect rolls of expensive materials from being damaged, to speed up roll-changing and handling. It eliminates need for overhead cranes and slings and increases safety, and in many cases enables one man to do the job.

The Lifter is custom built to suit individual requirements. It can be furnished with trunnions, as pictured, for handling rolls having a shaft or spindle, or with a scoop for handling cylindrical objects that have no shaft. For horizontal movement, the Lifter is mounted on four unbreakable steel casters, two rigid and two swivel for easy steering. Wheelbase dimensions are kept small so the Lifter can be maneuvered through narrow aisles and between closely-spaced machinery. Though most units are hand-operated, electric hydraulic power unit can be installed if desired. A floor lock can also be furnished.



Bin Level Control

Fly ash, collected in a Cottrell precipitator in the power plant of a Midwestern public utility, is reported to be automatically measured and the bin level controlled by the Model 40 Rotax Controller, product of Foxboro Co., Foxboro, Mass.

A temperature bulb, mounted inside the precipitator, normally senses the higher temperatures of the flue gases from which the dust is precipitated. When the dust deposit covers the bulb (acting as insulation) the controller, responding to the resulting lower temperature, completes an electrical circuit through its Rotax contacts to sound an alarm and alert the operator.

If desired, the Controller can be installed to operate a screw conveyor, belt or other motor-driven equipment, automatically emptying the bin or tank when the desired level is reached, it is stated.

The system is held to be equally effective for most bulk materials, provided their temperature in the bin is considerably above or below the ambient temperature.

Details of the system and its applications are contained in the new Engineering Data Sheet, 823-12, available on request.

Smaller Gauge Weatherproof Extension Wire

Further economies in consumption of critical materials—and in customer operations — will be introduced next month by Minneapolis-Honeywell Regulator Co.'s Industrial Division, Wayne and Windrim Avenue, Philadelphia, Pa. At that time the company will start shipping a smaller gauge weatherproof extension wire for its iron-constantan thermocouples.

Use of the smaller wire makes it possible to increase the total footage of wire which customers may obtain from the alloy alloted to the company.

(Continued on page 34)

Atomic Age Theme of Packaging Forum

The Packaging Institute has announced that its fourteenth annual Forum was larger and more successful than all previous ones. Approximately 1100 persons attended the three day seminars and luncheons at the Hotel Commodore, New York, from October 20 through 22. Various phases of product packaging were discussed in technical papers and discussion groups. The dominant theme of all meetings was Packaging in the Advancing Atomic Age.

Of special interest to attending papermakers was a paper by Dr. W. A. Schenk, technical superintendent, and C. E. Petersen, Technical Dept., Riegel Paper Corp. In discussing "A Specific Packaging Problem Arising from Nuclear Fission," Dr. Schenk revealed the difficulties in eliminating radioactive sensitizing material from photographic interleaving papers. Radioactivity invades paper mill water supplies when precipitation onto the water shed coincides with passing clouds of atomic dust. These clouds are carried eastward by prevailing winds following a nuclear explosion in Nevada or the Pacific. Mill streams can also become radioactive from waste discharged by plants using radioactive materials.

Dr. Schenk observed further that cellulose is an excellent filter of active particles, and prolonged washing of the stock increases retention of the sensitizing material. The best means of control, he feels, is good filter treatment of the water supply, plus careful scheduling of production runs for times when Geiger instruments and weather monitoring reports indicate low radioactivity in the mill area.

To Revise Fade Tests

Among several committee reports was one on "Progress In Testing Fading of Printed Packaging Materials By the Fade-Ometer." The Fade-Ometer Test Sub-Committee under Chairman C. A. Reynolds, Jr., of S. D. Warren Co., reported in part as follows:

Certain odd, or apparent, variations in the permanence of printing inks have been traced to color changes or fading of the paper itself on which the ink had been printed when exposed to ultra-violet light in the Fade-Ometer. The sub-committee now recommends the testing of inks for fading on a non-fading paper, such as Eastman Kodak Co.'s "Standard Single Weight Photographic Base." This paper is procurable in large lots but the sub-committee must still work out a system for distribution and sale in small lots for testing purposes. . . .

Inks have been found to exhibit differing fading characteristics or permanence of the same color when its strength has been reduced. Exhibits were displayed to the audience, but the sub-committee is not yet prepared to integrate this phenomenon into the proposed testing procedure.

In response to outside criticisms of the original proposed procedure, the sub-committee has made several modifications in the revised version:

(a) Instead of specifying the use of the Fade-Ometer, Model FDA-R, made by Atlas Electric Devices Co., the revision specifies this instrument "or its equivalent."

(b) Exception taken to the allowable temperature tolerance, not to exceed 104 ± 4 deg. F., has called for the use of a black panel thermometer for measuring the temperature. The sub-committee promises to experiment with this form of apparatus and, if found more satisfactory, may include it in the next revision of the test procedure.

(c) Relative humidity as originally proposed was specified at not exceeding 50 percent. The revision calls for a maximum RH of 35 percent, but, if the use of the black panel thermometer proves satisfactory, it may require a further rewording of the RH specification.

(d) The chart of data in the PI Printing lp-51, giving equivalent days of exposure in Washington, D. C., to hours in the Fade-Ometer, has been questioned. Because the data were gathered some 20 to 30 years ago and do not compare with today's figures, the chart has been eliminated even though such a chart might be useful in approximating color fastness of paper and inks.

Urge Wider Use of Palletized Unit-Loads for Storing Printed Packaging Stuffs

Reporting on "Proper Ways to Handle and Store Printed Packaging Materials in the User's Plant," sub-committee 7 under C. C. Sutton, General Foods Corp., cited as a major cause of damage to roll paper stock as dropping and rough treatment. He recommended that such loss could be avoided by greater use of palletized unit-loads. Because of the adverse effect of aging on paper stock whether printed or not, Mr. Sutton cited the important rule in inventory control, "First-in, First out," and also recommended that for the handling of labels, sheets and boxes, small bundles or not over 500 units would avoid mishaps which result in damage.

Evaluate Printability of A Material

A full report was given by the Printed Packaging Materials Committee on "Evaluating Printability of A Material." Members of this committee included: B. A. Gaffney, New Haven Pulp & Board Co., chairman; L. K. Burnett, Ohio Boxboard Co.; R. L. Cain, Westfield River Paper Co.; J. H. Folkerth, Birmingham Paper Co.; George Paulding, Scott Paper Co.; P. L. Reed II, Wilson Paper Box Co.; C. A. Reynolds, Jr., S. D. Warren Co.; Russell D. Scribner, Robert Gair Co.; William C. Walker, National Printing Ink Research Institute. Chairman Gaffney presented this report, sections of which appear below:

In the printing of cartons on paperboard, as on any other material, our product is rated on one factor: uniformity to standard. This uniformity is obtained through the consistent performance of man, machine, and material. To attain this desirable uniformity of material there are certain basic, in-process factors to control.

Our purpose in holding paperboard within range allowances that have been proven satisfactory is to eliminate the "Who done its?" between printer-ink supplier and board mill superintendent, and to manufacture and ship cartons of acceptable quality level. The usual paperboard control chart of today will graph caliper, weight per thousand square feet and moisture content. Recordings against tolerance of mullen, tear, penetration, brightness, pick and stiffness, as well as bender, coverage,

finish, count and odor are also an important part of any control chart. Some of these characteristics are not important to printability, but they are essential to carton performance. Caliper and weight per thousand square feet (or density as we might call it) work hand in hand regarding printability. It is true enough that the product to be packaged both from the standpoint of size and weight will be the deciding factor in selecting caliper. The detail of design and the smoothness of the printing surface required will determine the density or weight per thousand square feet.

A fine halftone or multi-color process printing job certainly demands a smoother printing surface than the simple line design. Since the density at given caliper or thickness will affect the smoothness of the sheet, it has become customary to express the basis weight along with caliper when ordering boxboard. An excessive caliper variation may result in feeder trouble, break-ups in printing and other failures on the simple job. A pressman can very often overcome such failures through make-ready and fountain settings on this type of job, but the best of pressmen cannot overcome the lack of uniformity in finish or smoothness caused by excessive variations in weight even though the caliper may remain constant. His printing problems caused by this lack of smoothness will vary with the complicity of the design. It is generally agreed that a 0.001 variation in caliper up or down and a 5 percent variation in weight either way is allowed. This is, of course, a very general rule. We have found it wiser to let the printing design and the quality level required determine the latitudes best suited for the job. It has also been our experience that the printer has fewer problems when both caliper and weight are controlled within those limits.

It is axiomatic that if a free, long-fiber, dense stock is keeping you within control at the dry end of a paper machine, uniformity of finish at the wet end must be maintained to remain within control.

The importance of moisture content in paperboard as related to its printability is a complex subject. If the ink dries too rapidly or if, on the other hand, it never dries at all and the results are substandard, the printer has an "out" either way. In the first place the board was too dry and the color was lost because the drying was too fast, and if the drying was too slow then the board was run with an excessively high moisture content. It is usual to run the light weights up to 24 point in a range of 5 to 6½ percent moisture and the heavier stocks from 5½ to 7 percent. We are dealing with a hygroscopic material. Boxboard, depending on atmospheric conditions, can give off — or take on — moisture. We strive to maintain uniform moisture content, both across the machine and in the direction of travel. The greatest failures in printing caused by moisture will be due to wide variations within the load of stock or very often from one side of the sheet to the other.

An ink can be modified to speed up or retard drying but such corrections cannot be made from sheet to sheet. Such failures as offset, color variation, and off-register are often caused by the lack of uniformity in the moisture content of the stock. There we are, back to that word "uniformity" again.

Brightness is sometimes simply thought of as a numerical reading on a G.E. or a Photovolt machine. This line of thinking is essentially correct, but whiteness must be controlled if the brightness readings are to mean anything. The shade of whiteness that goes best with the printed design often originates with the artist who conceived the idea for the package. He may feel that a soft cream-white is most desirable. On another design the same artist may want a very blue-white board. This brings up the same old question: which white is whiter, the blue-white or the cream-white? Since we can get identical brightness readings on both a cream-white and a blue-white stock, we have only one solution, and that is to match the whiteness first and then take the brightness readings. This brightness-whiteness theory might sound like so much trivia, but try printing a transparent, pastel shade of blue on both a cream-white stock and then on a blue-white stock with identical brightness readings and check your printed results! Very often it is this undertone from the board that "Tees off" the three cornered meeting between printer, ink supplier, and mill superintendent. This meeting is usually followed by hurried modifications in the ink and when this happens you have only one course to take—sit back and pray and get ready to sort for color.

Ink proofs made on a small press on a cross section of the stock made for the order are a help. They are certainly not the entire answer, but they do give an indication of trouble if trouble is on its way.

When printing gloss ink, it is usual practice to increase the beater size as well as the surface size on the paper machine. There are multiple problems in making a uniform gloss ink board. The amount of size added cannot be a matter of guess work. If too much size is added you will dull the sheet and lose the brightness. If the condition of the stock isn't right when the size is added, you may run into "loading," as we call it, a condition where the size is precipitated on to the fiber unevenly, and the penetration or ink absorption of the board will have such a wide range that uniformity of gloss printing is impossible. The important factors that will affect the sizing are the purity of the pulp, the water used, the degree of beating and sheet formation, the point of addition of size and alum, the temperature of the stock, the pH of the stock, the rate of water removal and the contact time of size and alum with pulp. All of these factors are controlled at the wet end of a paper machine. If they are not a part of the systematic control, you can have a most impressive looking quality control chart at the dry end of the machine and all you are doing is keeping score; you are certainly not helping the printer to produce cartons that will keep your company out in front as a consistent producer of quality cartons.

The penetration tests that are made at the dry end of a paper machine are a double check against the wet end and machine performance. In this type of test we are checking the time it takes for a given quantity of a solution to be completely absorbed by the stock. Many solutions are being used for this purpose, such as 10 percent solution of lactic acid, the oil-drop test, in which mineral oil is used, a butyl carbitol solution, or straight distilled water. Whatever solution is used, or method employed, we have one purpose in mind and that is to be certain that the range in absorption is within the latitudes that have been proven to result in quality printing. To standardize this test we use a pipette that will drop 22 drops per cc. The solution is dropped from a height of 3 inches and then timed. In order to check completely across the machine we employ the faster penetrating solutions wherever possible.

Penetration and pick, just like caliper and weight, are complementary factors. A perfect performance in penetration is worthless if the bonded affinity of top liner to underliner isn't up to standard. If, for example, a range in penetration has been well controlled for a given gloss ink and the printer finds the top liner of the stock adhering to the electrotypes, whereas the ink should properly transfer to the surface of the sheets, he has only one course to follow, and that is to reduce the tack of the ink. A reduction in tackiness of the ink will change its rate of absorption. Since the penetration of the board was made for the original ink, the printed results may

be substandard. The usual pick test is made by the use of graded waxes but there are also machines made for this purpose wherein tack-rated inks are employed. The control of the pick of the board starts at the wet end of a paper machine. The bonded affinity of top-liner to under-liner depends largely on the consistence of the two stocks.

When penetration and pick are out of control, and ink modifications are necessary, there are many printing qualities that may need to be sacrificed. The degree of gloss finish may be impaired, the trap of colors affected and even the resistance to fade or the chemical relationship of the product packaged to the properties of the ink may be lost.

There are other, more or less important, control points in the making of paperboard for quality printability. The back of the sheet must be smooth if we are to successfully run without offset. When a greater amount of offset spray is required, we are always in danger of producing rough cartons. Even the accuracy of the paper-machine chop and slitter can affect printability. In this day of high speed, fully automatic machines, a sheet has to be accurately up to the guides when picked off by the grippers if we are to avoid throo-offs due to improper timing. Throw-offs, as we call the press shutting off because of this inaccurate timing, will cause roller marks and lack of uniformity in ink coverage.

The tests that we have touched upon, namely caliper, weight, moisture, brightness, pick and penetration can all be easily systematized.

Other reasons for constant inspection are such things as felt hairs, slime spots, calender scabs, fuzz and slitter dust.

I am sure that most of you will agree that accurately evaluating the printability of paperboard is a difficult task. Improvements in tests and methods may make the problems easier in the future but certainly of no greater challenge than they are today.

Special events of the Forum featured a movie on the Folding Carton, introduced at the folding carton luncheon by Charles P. Jeppeson of National Folding Box Co. and a speech by Dr. Philip W. Swain, editor of *Power* magazine. Dr. Swain delivered a Plain Talk on Atomic Power and the Atom Bomb at the Wednesday noon atomic luncheon. His remarks were spectacularly emphasized by a color movie on the Bikini bomb explosions.

Metropolitan TAPPI to Meet

A meeting of the Metropolitan District, Empire State Section, TAPPI, has been called for 6:15 p.m., Wednesday, November 12. The meeting will be held at Fraunces Tavern and will feature a panel discussion on "Rubber Latices for Paper." Participants in the discussion will be Roger Steller, B. F. Goodrich Chemical Co., and one representative each from Dow Chemical Co. and Du Pont Co.

Paper Napkin Assn. Hold Round Table

The Paper Napkin Assn., composed of 35 leading manufacturers, held its seventh annual fall meeting at the Pocono Manor Inn, Pocono Manor, Pa., on October 13 and 14. B. T. Hoffmaster, president of the Hoffmaster Paper Co. and chairman of the association, presided at the meetings which were conducted in the round table manner. This association has been particularly successful in conducting this style of meeting. Through a committee system the association has developed a wide participation by a great number of members. Some of the important projects upon which these committees are working are as follows: Wage-data plan by which participating members exchange information regarding wage rates, fringe benefits and other industry relations information; quality standards project for promoting a general higher grade of napkin and thus spread their usage to satisfied customers; federal specifications — cooperate with government agencies as to uniform requirements and types of napkins on which the majority of the industry can bid; traffic committee which has recently accomplished a reduction in freight rates for LCL shipments resulting in savings of many thousands of dollars for the paper napkin industry.

The annual meeting of this association will be held during "Paper Week" on February 17, 1953, at the Waldorf-Astoria in New York. Plans are also being made for a meeting to be held at the Broadmoor Hotel in Colorado Springs, Colo., during the month of May, 1953. This will be followed by the eighth annual fall meeting at the Homestead in Hot Springs, Va.

At the fall meeting, in addition to business sessions, there were several social activities including a cocktail party and a golf tournament at which Sam Lopin, vice-president of the Hudson Pulp & Paper Corp., won the low gross—a repeat performance from last year. Larry Graham of the Graham Manufacturing Co., Holyoke, Mass., manufacturers of the "Graco" line, established a record of losing twelve golf balls during an eighteen hole match.

FINANCIAL

Container Corp. of America, consolidated earnings for the three month and nine month periods, ended September 30, 1952 compared with the similar periods in 1951 after all charges, including provisions for depreciation, taxes, and year end adjustments, are as follows:

	1952	1951
For the Three Months ended September 30		
Earnings before Federal taxes on income	$ 6,860,000	$ 5,960,000
Provision for Federal taxes on income ...	4,426,000	3,971,000
Net earnings	$ 2,434,000	$ 1,989,000
Net earnings per share —Common Stock ..	$1.19	$.96
For the Nine Months Ended September 30		
Earnings before Federal taxes on income	$23,133,000	$29,478,000
Provision for Federal taxes on income ...	15,395,000	19,963,000
Net earnings	$ 7,738,000	$ 9,515,000
Net earnings per share —Common Stock ..	$3.77	$4.66

Fort Orange Paper Co., Castleton, N. Y., has been authorized to increase the number of shares of its common stock from 10,000 to 120,000, according to papers filed with the secretary of state.

The increase in the number of shares of common stock is in effect a split of 10 for one as only 100,000 of the new shares will be issued, William G. Latham, president of the company, said. The other 20,000 shares authorized can be issued at some future time at the discretion of the company's board of directors. The common stock is listed with no par value.

St. Regis Paper Co. reports net sales for the nine months ended September 30, at $135,851,225, compared with $146,078,366 in the comparable period of last year. Net income, after provision for Federal taxes, for the nine-month period amounted to $8,555,863, equal, after preferred dividend requirements, to $1.55 a share on the common stock outstanding. This compared with $12,769,676, equal to $2.36 a share on the common, for the same period of last year.

The company declared a regular quarterly dividend of 25 cents a share on the common stock, payable December 1, to stockholders of record November 1. The regular quarterly dividend of $1.10 a share on the preferred stock was declared, payable January 1, 1953, to holders of record December 5, 1952.

Robert Gair Co., Inc., New York, N. Y., has increased quarterly dividend on its common shares from thirty cents to thirty-seven and a half cents per share, in respect of the fourth quarter of 1952, payable December 10 to stockholders of record at the close of business on November 20, without the closing of the transfer books.

For the quarter ended September 30, 1952, the consolidated net income of Robert Gair Co., Inc., and its wholly owned domestic subsidiaries, combined with its 60 percent equity in the consolidated net income of Southern Paperboard Corp. and its subsidiary and with the consolidated net income of Gair Co. Canada Ltd. and its wholly owned subsidiaries amounted to $1,479,428, or 67 cents per share on 2,179,888 shares of common stock. This was after deducting provision of $1,466,000 for U.S. Federal Income Taxes and after preferred dividends.

The combined net income for the first nine months of 1952, after deducting provision of $5,095,000 for U. S. Federal Income Taxes and after preferred dividends, amounted to $4,107,265, or $1.88 per share on 2,179,888 shares of common stock. For the same period in 1951, the combined net income, after deducting provisions of $7,380,000 for U. S. Federal Income Taxes, and after preferred dividends, was $5,014,801 or $2.82 per share on 1,779,888 shares of common stock then outstanding.

Net sales of Robert Gair Co., Inc., and its wholly owned U. S. subsidiaries for the first nine months of this year amounted to $56,593,060 compared to $60,694,420 for the same period in 1951.

Scott Paper Co. net sales of finished paper products for the first nine months of 1952 were $94,629,768 compared with $91,891,078 for the corresponding period of 1951. Net pulp sales were $13,217,144, a decrease of $6,451,451 reflecting primarily the increased consumption of Soundview Pulp by Scott Paper Mills. Soundview Pulp Co. was merged into Scott on November 9, 1951.

Net income after provision for taxes on income was $7,430,927 for the first nine months of 1952, equal after preferred dividend requirements to $2.38 per common share compared with net income of $8,210,756, or $2.64 per common share for Scott and Soundview added together for the corresponding period of 1951.

Rolland Paper Co., Ltd., has declared a dividend of 20c on common, payable December 1 to shareholders of record November 15 and another dividend of $1.06¼ on preferred, quarterly, payable December 15 to shareholders of record December 1.

Keyes Fibre Co. reports net profit of $753,710 for the nine months ended September 30, after all changes including federal taxes on income, compared with $967,059 for the corresponding period of last year. After deducting dividends on the first preferred and class A stocks, the balance for the first nine months of 1952 amounts to $2.65 per share on the 214,901 shares of common stock outstanding at the end of September. On the same basis, the figure was $3.64 per share for the nine months ended September 30, 1951.

Provision for federal income and excess profits taxes for the 1952 period, at the rate of 63.5 percent, amounted to $1,297,750 or more than $6 per share of common stock. For the 1951 period, the rate was 62 percent.

The original issue of 100,000 shares of first preferred stock, 5.6 percent series, of $25 par value per share, was reduced to 47,168 shares outstanding on September 30, 1952, through conversion and operation of the sinking fund.

The company has declared a dividend of 50 cents per share on the common stock payable December 1, 1952, to stockholders of record at the close of business November 12, 1952, and a dividend of 35 cents a share on the first preferred stock 5.6 percent series, of $25 par value per share, payable January 1, 1953, to shareholders of record December 10, 1952; and a dividend of 75 cents a share on the Class A stock, payable February 1, 1953, to stockholders of record at the close of business January 13, 1953.

Union Bag & Paper Corp. plans to file with the Securities and Exchange Commission a registration statement in the near future covering an offering to its stockholders of approximately 250,000 shares of its capital stock. The funds realized will be added to working capital. It is contemplated that the offering will commence near the end of November. Details of the financing plans are being discussed with Morgan Stanley & Co.

The company has declared a regular quarterly dividend of 75 cents per share and an extra dividend of 50 cents on the capital stock, both payable December 10 to stockholders of record November 25.

Central Paper Co., Inc. net income for year to June 30: $251,520 on operating revenues of $9,267,849, compared with $546,157 on revenues of $9,527,935 in the preceding fiscal year. Inventories of paper, pulpwood and materials total $1,432,031, against $991,938 a year earlier.

Sutherland Paper Co. has declared a 37½ cent quarterly dividend, payable December 15 to stockholders of record November 14, for its common stock. The dividend for its 4.40 percent cumulative preferred stock will be $1.10.

Net income for the three months ending September 30 was $632,000, compared to $410,733 for the same period a year ago. Net sales were noted at $12,723,299, a jump from $11,410,184 in 1951. For the nine-month period net sales totaled $37,158,894, down from $37,957,236 a year ago. Net income so far this year was placed at $1,827,105, while three quarters in 1951 netted $2,064,626.

Nekoosa-Edwards Paper Co. sales and revenues for the first nine months of 1952 totaled $18,375,000, a 4 percent increase over the same period a year ago. However, due to increased manufacturing costs, profits before income taxes totaled $3,870,500, a slight drop from 1951.

Greater income tax rate for 1952 has resulted in a lower net income of $1,370,000 compared with $1,441,000 for the first three quarters of 1951.

Current earnings of $3.96 per share were reported while a year ago earnings amounted to $4.19. A total of 65,088 tons of paper was sold through the third quarter.

Union Bag & Paper Corp. has declared an extra dividend of 50 cents, plus a regular quarterly dividend of 75 cents on the common stock, payable December 10 to shareholders of record November 25. This brings payments to $3.50 this year, against $3.75 in 1951.

S. D. Warren Co. has declared a dividend of 25 cents per share on the common stock and $1.13 per share on the $4.50 cumulative preferred stock, both payable December 1 to stockholders of record November 7.

United Board and Carton Corp. New York, N. Y., reports net income for the twelve weeks ending August 23 amounted to $437,285.94 and its net profit after Federal income and excess profits taxes of $231,761.55 was $205,524.39.

During the same period in the preceding year net income was $436,532.85 and net profit after Federal taxes of $196,439.78 was $240,093.07.

Stone Container Corp. sales for the nine months ended September 30, 1952, totaled $15,441,304 compared with $18,340,987 in the same period of last year.

Net earnings for the first nine months of this year were $1,065,000 or $1.52 per share of common stock out-

standing compared with $1,370,000 or $1.95 per share for the like period of last year.

Net earnings reported for the first nine months of last year were computed after taxes then in effect but did not reflect increased taxes on corporate income resulting from the 1951 Revenue Act, passed October 20, 1951, and retroactive to April 1, 1951.

Union Bag & Paper Corp. net sales for the quarter ended September 30 were $23,261,549 compared with $25,489,937 in the third quarter of last year. Sales in the June quarter of this year were $20,815,023.

Net income in the third quarter of 1952, including net tax refund of $587,713, was $3,094,963, equal to $2.04 per share on the 1,518,198 shares of capital stock outstanding. This compares with net income of $3,012,879, or $1.98 per share in the September quarter last year on shares then outstanding. For the June quarter of this year net income was $2,386,245, or $1.57 per share.

For the nine months ended September 30, 1952, sales amounted to $69,058,310 compared with $78,936,032 in the similar period a year ago. Net income for the nine months was $8,123,600, equal to $5.35 per share on the presently outstanding shares, compared with net income in the nine months of 1951 of $9,420,958, or $6.21 per share on the shares then outstanding.

Marathon Corp. has declared regular quarterly dividends on the company's common and preferred stock. The dividend on common stock is 30 cents a share, payable November 29, to stockholders of record at the close of business November 7. The preferred dividend is $1.25 a share, payable January 2, to stockholders of record December 19.

Eastern Corp. of Bangor, Maine, reports net sales for the first nine months of 1952 amounting to $17,111,978, compared with $18,474,381 in the corresponding period of 1951.

Net income for the first nine months of 1952, after provision for taxes, was $768,330 or $2.04 per share of common stock, compared with $1,615,583 or $4.29 per share in the first nine months of 1951, which included $396,631 profit from sale of securities realized during that period equivalent to $1.05 per share.

A cash dividend of 25 cents per share payable December 1 to stockholders of record November 14 has been declared. Similar dividends were paid on March 3, June 2, and September 2 of this year.

ONLY NASH VACUUM PUMPS HAVE ALL THESE FEATURES
One Moving Element. Non-pulsating Vacuum. No Internal Parts In Wearing Contact. No Internal Lubrication. Handles Liquid With Air. No Expert Attendance. Constant Efficiency. Low Maintenance Cost.
Plus -
NASH ENGINEERING COMPANY
409 WILSON AVE., SO. NORWALK, CONN

New Equipment

(Continued from page 28)

It also enables users to install more wires per conduit, the manufacturer points out.

The small-gauge, two-conductor wire is covered with the same type of thermoplastic insulation used for larger gauge wire of the same type. Each conductor is individually coated with polyvinyl chloride 1/64-inch thick, and both conductors are covered over-all with cotton braid impregnated with asphaltic base weatherproof saturant. Color coding will be the same as for the larger gauge; white designating the positive conductor and red the negative conductor.

The smaller gauge wire can be used with all models of Honeywell's electronic instruments, most of which are relatively unaffected by external resistance.

10-Power Magnifier Penlight Type

An inexpensive, 10-power magnifier that can be clipped to the pocket like a fountain pen is announced by Bausch & Lomb Optical Co., Rochester, N. Y.

Designed for on-the-job inspection of small parts, castings, small joints and welds, reading micrometer and other fine scales, and similar shop and laboratory uses, the magnifier uses two penlight batteries and bulb for illuminating the object.

Weighing only two and one-half ounces, including batteries, the magnifier employs a unique lens construction which allows the light from the bulb to go directly through the lens and onto the object, without any direct light reaching the user's eye. Because a 10-power magnifier is most effectively used when held directly to the eye and less than an inch from the object, built-in illumination is highly desirable in order to observe the fine detail for which the magnifier is used, the manufacturer points out.

Diagram shows how built-in light source makes object visible regardless of surrounding light conditions. Black-coated side of diaphragm prevents direct light rays from entering user's eye. Lower side of groove is ground to allow passage of diffused light through lens and onto object.

Copper-Based Fungicides Announced for Test

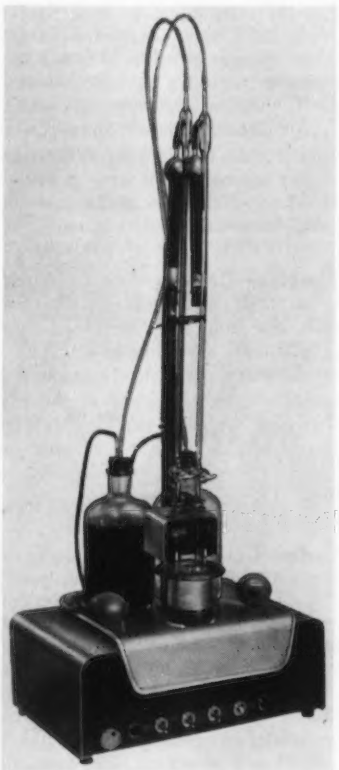
A completely new group of solvent soluble, copper based, organic fungicides is now available for industrial testing according to an announcement by Barfair Laboratories, Inc., City Island, New York 64, N. Y. These products range from an easily soluble copper pentachlorphenate, a product known for its mildew and rot proofing properties but limited in use because of its previous availability as a difficulty-handled, toxic powder, to a solvent soluble but water-dispersible copper acetate which, it is felt, has possibilities as a new, cheap, agricultural fungicide.

The technique used in preparing these compounds involves the formation of complexes with selected nitrogen containing organic compounds. It offers the convenience of ready solubility in cheap solvents (such as mineral spirits) and, in addition, definitely increases the fungicidal power of the compounds per unit of copper metal present. At the same copper metal level, for instance, one widely publicized copper fungicide showed an increase of tensile strength retention on soil burial of over 400% when treated by this method, it is claimed.

Five compounds are available for test; Barfair CPCP, a soluble, activated, copper pentachlorphenate; Barfair CPHB, a companion product based on copper p-hydroxybenzoate; Barfair CDCB, copper 3,4 dichlorbenzoate based homologue; Barfair CMD, a soluble, coprecipitated, copper methylene bis disalicylate/copper pentachlorphenate in which 90 percent of the ring structure is supplied by methylene bis disalicylic acid; and Barfair CAA is a solvent solublized, water dispersible, copper acetate. The manufactur points out that Barfair CPCP should be useful for heavy-duty wood or textile preservation; Barfair CUHB and CD-CB should be of interest in white or light colored textile proofing compounds; Barfair CMD is of general interest as a rot and mildewproofer; and Barfair CAA, it is hoped, will fit into the agricultural fungicide field.

With the exception of the Barfair CAA, which has not been tested along these lines, all these materials appear to pass soil burial testing and the mildewproofing requirements of specifications such as JAN-D-504, in combination with wax based water repellents at copper levels in the neighborhood of 0.3%. Limited patch testing seems to indicate that the solublizing process lowers the irritant properties of the basic copper salts.

Since the solublizing process is not inherently expensive, the good performance of these compounds at low copper levels indicates new sources of very low cost fungicidal protection, it is held.



Redesigned Aquameter

A new model of the Aquameter based on the same principle as the original design but extending its applications for determining moisture content over a wider range is announced by Beckman Instruments, Inc., 820 Mission street, South Pasadena, Calif.

Fully automatic, the unit makes possible the completion of either direct or back titrations in a matter of one or two minutes with a precision of 0.05 milliliter, or better, obtainable even where simultaneous extraction and titration are required.

Heading the list of refinements designed into the new unit is an alternating current, null-detecting amplifier circuit which responds to change in the resistance between the electrodes due to a decrease in the polarization as the end-point of titration is approached. This new circuit eliminates the need for a sensitive relay, and titrations are unaffected by variations in line voltage or the speed with which the sample solution is stirred, it is said.

Additional features of the new Aquameter include a curved ceramic tray protecting the front and side panels from accidentally spilled chemicals, a built-in variable speed magnetic stirrer, an increase in reagent reservoir capacity from 1 to 2 liters, and a great improvement in appearance and compactness.

The reaction vessel employed is a standard 300 ml beaker. A detachable silicone-rubber seal fits easily over the top of the beaker to exclude outside air.

Inquire for Bulletin 276-16.

Linear Terpolymer in Aqueous Dispersion

Announced by American Polymer Corp., Peabody, Mass., is new type linear terpolymer in aqueous dispersion to be known as Polyco 426.

Described as an anionic dispersion stable to normal mechanical handling, it is held to be stable at alkaline pH, though the emulsion is broken by addition of acids. The new polymer deposits soft, tacky films which show excellent adhesion to rayon, nylon, and other synthetic fibers, it is pointed out.

Tertiary amine groups attached to the main polymer chain impart remarkable adhesive properties to the resin.

Specifications:

Total Solids	38%
pH @ 25°C.	9 to 10
Viscosity @ 25°C.	10 to 20 c.p.s.
Specific Gravity @ 25°C. .	0.99
Pounds per gallon @ 25°C.	8.25
Color	Gray, translucent

The resin should not be subjected to freezing temperatures which may cause irreversible coagulation, it is said.

Addition of Polyco 426 to other resin dispersions, such as butadiene-styrene latices, it is said, improves their adhesion to synthetic fibers and glass. Its permanent tackiness suggests its use as a pressure-sensitive adhesive.

GOVERNMENT

New Forestry Resources Assistant

WASHINGTON, D. C.—Harry S. Mosebrook, native of St. Paul, Minn., has been appointed forest resources assistant in the Natural Resources Department of the U. S. Chamber of Commerce. He was forester for the Monongahela Power Co., Fairmont, W. Va., from April 1947 to January 1951.

MSA Crude Sulfur Authorization

WASHINGTON, D. C. — Austria has been authorized by MSA to use that agency's financing up to $130,000 to purchase approximately 51,000 metric tons of crude sulfur, for a contracting period ending February 28, 1953.

Other MSA authorizations for crude sulfur were announced as follows: France, $625,000, from U. S. sources; French North Africa, $60,000, from U. S. sources.

Keeling Named Director of NPA Chemical Division

WASHINGTON, D. C. — Thomas C. Keeling, Jr., of Pittsburgh, Pa., has been named director of the NPA's chemical division. He has been serving as deputy director of the division. He is on leave from his position as assistant vice-president and sales manager of the chemical division of Koppers Co., Inc., of Pittsburgh. Prior to World War II, he was with the Niagara Alkali Co., New York City, as sales engineer. He is a native of Baton Rouge, La., and a graduate of M.I.T.

Increase Sulfur Allocations

WASHINGTON, D. C.—Additional export quotas from the sulphur production of Mexico, Chile and Norway have enabled the sulphur committee of the International Materials Conference to authorize increased allocations to a number of countries for the latter half of this year, the committee reported this week.

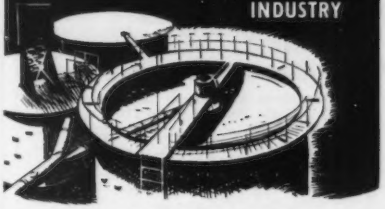
"New evidence has been presented of increased export availabilities from certain exporting countries, mainly in Latin America," the committee said. "The original allocation also provided for a quantity set aside as a contingency reserve. The balance of this contingency reserve is now being distributed.

"After reviewing these factors, the committee has recommended a supplementary distribution of 29,600 long tons for the last six months of 1952."

A number of countries were given increased import quotas.

CORROSION

AFFECTS EVERY PLANT IN THE PAPER INDUSTRY



MILLIONS OF DOLLARS ARE LOST ANNUALLY

And your plant is *not* immune. Corrosion may attack in many ways . . .

1. **Your Hard-to-Get Equipment** . . . may be ruined by constant attack of acids, alkalies, fumes, chemicals, moisture, gases and weathering.
2. **Your Valuable Products** . . . are subject to contamination and loss whenever they are in contact with corroded surfaces.
3. **Expensive Shutdowns** . . . and loss of production with costly man-hours for repairs may be incurred unnecessarily.
4. **Your Profits** Ruined equipment, contaminated products, the loss of production and repair expense caused by shutdowns mean only one thing . . . reduction in *your* profits!

RIGHT NOW . . . you should investigate the economies of using Amercoat; a *line* of coatings built to protect against *specific* industrial corrosion hazards.

Our field engineers are available . . . without obligation . . . to check your plant for corrosion problems . . . and to give you *specific* recommendations.

AMERCOAT CORPORATION
A division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

FOLLOW THE LINE OF *most* RESISTANCE

PROTECT WITH *Amercoat*

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$121.00/$126.00
Sheets	138.00/ 147.50

Kraft—per cwt. 50# base wgt. OPS Ceiling CPR 88

F.o.b. Southern & Western integrated mills. C.l. Freight allowed up to $10 a ton.

Standard Wrapping, ctr. rolls	$7.75/ —
Butchers, counter rolls	8.25/ —
Standard Bag, mill rolls	7.50/ —
Shipping Sack, mill rolls	7.75/ —
Gumming, mill rolls	8.00/ —
Asphalting, mill rolls	7.75/ —
Envelope, Sub. 20, mill rolls	9.25/ —

Tissues—per ream 24x36 (480) 10 lbs. 2500 lbs.

Wh. No. 1 Frd.	$1.85/$1.90
Wh. No. 1 MG	1.85/ 1.90
Wh. No. 1½	1.50/ 1.65
Wh. No. 2	1.35/ 1.45
Kraft Anti-Tar 20-30	1.75/ 1.80
White Anti-Tar 20-30	2.20/ —

Toilet— per case of 100 rolls—1M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5, 650 sheets	6.65/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.81/10.14
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x4½, 2 ply	$8.95/10.37
4½x5, 2 ply	10.25/10.75

Paper Towels—per case of 3750

Wh. Jr. M'tif'd 9½x9½	$6.40
Br. Sr. M'tif'd 9¾x12	4.40
Br. Jr. M'tif'd 9½x9¾	3.90
Br. Jr. Sgl. fold 9¾x10¾	3.95
C-Fold 10¾ min. x 14 max.	5.90/ 6.64
Blchd. 7½x11, 48/50 rolls	6.80/ 7.92

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets	18.50/20.50
Printing Manila	12.00/ —

Gummed Tape—per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$6.90/ —
60-lb. 600 ft. GSI	6.90/ —
35-lb. 800 ft. GSI	7.95/ —
35-lb. 500 ft. GSO	6.00/ —

MARKET WOOD PULP

Fourth Quarter Contract Prices, Per Short Air-Dry Ton

Delivered Basis — Varying Freight Allowances

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 87.50†	‡$60.00/ 85.00	‡§66.00/ 70.00		$75.00/ — §
Sulfate, Bleached	140.00/147.50	145.00/155.00	140.00/142.50§		
Semi-bleached Sulfate	140.00/ — *		135.00/ —		
Sulfate, Unbl.	100.00/ —	100.00/125.00	$100.00/105.00§	$105.00/135.00	100.00/ — §
Sulfite, Blchd.	140.00/ —	140.00/145.00	140.00/ —	140.00/ —	140.00/145.00
Sulfite, Unblchd.	125.00/132.50	135.00/ —	115.00/ — §	120.00/125.00	115.00/ — §
Sulfite, Unbl'd (Glassine)	132.50/ —	139.00/ —	119.00/ — §		
Soda, Blchd.	140.00/ — *				
Sulfite Screenings	72.50/ — *				
Sulfate, Screenings	67.50/ — *			Delivered Basis	
Groundwood Screenings	60.00/ — *				
Unblchd. Sulfate Sideruns	132.50/ — *				
Stand. News, Sideruns	92.50/ — *				

* OPS Ceiling, CPR 49. ‡ F.o.b. Shipping Point. § On Dock Atlantic Ports.
† Midwestern markets.

Boards Deld., per ton (10 tons or over)

Filled News	$90.00/ —
Plain Chip	90.00/ —
Blchd. Mla. L-d. Chip	140.00/142.50
White Pat. coated .020	160.00/162.50
Kr. Liner 42 lb. M sq. ft. $2.47	117.50/ —
Kr. Corr. .009 M sq. ft. $1.59	122.50/ —
Binders Boards	133.00/ —

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—White, 20 lb.

Bonds	4-Ctns. per cwt.
100% Rag. Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns. per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds	4 Ctns. per cwt.
Watermarked	$19.00/$20.50
Plain	18.40/ 19.50

Ledgers	4 Ctns. per cwt
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case per cwt.
No. 1	$23.90/$24.65
No. 2	22.40/ 22.85
Machine Coated	
Extra No. 1	$21.35/$21.65
No. 1	19.15/ 19.65
No. 2	16.65/ 17.40
Uncoated	
No. 1 Antique (Watermarked)	$19.15/$19.65
Offset	18.15/ 19.15
A Grade E. F.	18.40/ 18.65
A Grade S. C.	18.90/ 19.15
B Grade E. F.	17.40/ 18.15
B Grade S. C.	17.90/ 18.65

‡ Indicates a price change.

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. See TRENDS.

	New York Nov. 3	Philadelphia Oct. 30	Boston Nov. 3	Chicago Nov. 5
No. 1 Mixed Paper	$7.00/ 10.00	$8.00/ 10.00	$7.00/ —	$10.00/ —
No. 1 News	12.00/ 13.00	11.00/ 13.00	12.00/ —	15.00/ —
Over-issue News	20.00/ 22.00	18.00/ 23.00	12.00/ 14.00	18.00/ —
Mill Wrappers	7.00/ 8.00	10.00/ 12.00	13.00/ 19.00	13.00/ —
Corrugated Containers	14.00/ 15.00	11.00/ 15.00	15.00/ 16.00	20.00/ —
Double Kraft Ld. Corr. Cuts	35.00/ 45.00	30.00/ 35.00	25.00/ 40.00	35.00/ 40.00
100% Kraft Corr. Cuts	45.00/ 55.00	40.00/ 55.00	35.00/ 45.00	50.00/ —
Used Sugar & Flour Bags	35.00/ 45.00	27.50/ 37.50	25.00/ 35.00	30.00/ —
Triple Resorted Br. Kraft	45.00/ 50.00	27.50/ 35.00	20.00/ 35.00	30.00/ —
New Br. Kraft Env. Cuts	70.00/ 80.00	65.00/ 75.00	55.00/ 65.00	50.00/ —
New Br. Kraft Bag Cuts	60.00/ 70.00	55.00/ 65.00	45.00/ 55.00	50.00/ —
No. 1 Gdwd. Shvs.	20.00/ 30.00	15.00/ 25.00	28.00/ 30.00	25.00/ —
White Newsblanks	65.00/ 75.00	60.00/ 65.00	40.00/ 50.00	50.00/ —
No. 1 Flyleaf Shvs.	40.00/ 50.00	25.00/ 35.00	25.00/ 42.50	30.00/ —
No. 1 Soft Wht. Shvs.	75.00/ 85.00	55.00/ 65.00	75.00/ 85.00	75.00/ —
Super Soft Wht. Shvs.	85.00/ 95.00	65.00/ 75.00	95.00/100.00	85.00/ —
Hd. Wht. Shvs.	95.00/100.00	85.00/ 95.00	85.00/100.00	90.00/ —
Hd. Wht. Env. Cuts	115.00/125.00	95.00/105.00	105.00/120.00	100.00/ —
New Manila Env. Cuts	65.00/ 72.00	65.00/ 80.00	75.00/ 85.00	40.00/ —
Col. Tab. Cards	55.00/ 65.00	50.00/ 55.00	40.00/ 50.00	50.00/ —
Manila Tab. Cards	70.00/ 85.00	70.00/ 85.00	75.00/ 85.00	60.00/ —
No. 1 Mixed Ledger	40.00/ 50.00	35.00/45.00	35.00/ 45.00	50.00/ —
White Ledger	57.50/ 62.50	50.00/ 60.00	55.00/ 60.00	65.00/ —
No. 1 Book & Mag.†	16.00/ 18.00	no market	18.00/ 28.00	15.00/ —
No. 1 Rep'd. Hvy. Books‡	26.00/ 35.00	no market	30.00/ 37.50	27.50/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

RAG MARKET

New Domestic Cotton Cuttings
Delivered Mill Basis

No. 1 White Shirts	$15.00/$15.50
No. 1 Unblchd. Muslins	17.00/ 17.50
Blchd. & Unblchd. Underwears	16.00/ 16.50
Blchd. Canton Flannels	15.00/ 15.50
No. 1 Light Silesias	13.00/ 13.25
No. 1 Light Prints	8.50/ 8.75
No. 1 Blue Overalls	11.00/ 11.75
Suntan Khakis	8.00/ 8.50
Fancy Shirts	7.50/ 7.75
Indigo Blues	7.25/ 7.50
Mixed Khakis	5.50/ 6.00
Corduroys	6.00/ 7.00
Cottonades	6.00/ 6.50
No. 1 Washables	5.00/ 5.25

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.50/$4.50
Cotton Pants & Overalls	3.00/ 4.00
Thirds and Blues, Repacked	2.50/ 3.00
No. 1 Roofing Rags	1.30/ 1.40
No. 2 Roofing Rags	.90/ 1.00

Bagging
(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$5.00/$5.25
Heavy Wool Tares	5.00/ 5.50
Foreign Scrap Burlap	4.50/ 4.75
Austr. Wool Pouches	6.00/ 7.00
Domestic Manila Rope	6.50/ 7.00
No. 1 Sisal Strings	6.00/ 6.50

COTTON LINTERS

Memphis Market
F.o.b. Oilmills

	Oct. 28 cents per lb.
Grade 2	13.25/ 12.00
3 1st cut	11.50/ 10.00
4	9.00/ 6.50
5	6.00/ 4.50
6 2nd cut	4.00/ 3.75
7	3.75/ 3.50

PRICES OF MATERIALS

Aluminum sulfate:		
coml. bags, wks.....cwt.	1.65	
iron-free, c.l.	3.25	
Alcohol, ethyl:		
tax free, dms. c.l.....gal.	1.01	/ 1.05½
deld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dms.		
c.l. tt. alld.....gal.	.44	
Casein, acid prec.:		
dom. sh. pt. c.l. .....lb.	.28	/ .38
imp. ex. dock .....lb.	.20½/	.24
Caustic soda:		
c.l. wks. solid, 76% cwt.....	3.35	
flak. & grd. 100-lb. drums...	3.75	
liquid 50% tanks....	2.55	
liquid 70% tanks....	2.65	
China clay:		
dom. air-float, c.l. wks.....ton	10.00	
water-washed, lump. filler....	11.00	
coating	17.60	/30.50
imported, ex. whse...short ton	15.20	/28.35
Chlorine:		
single-unit tanks, works...cwt.	2.70	
multi-unit .....cwt.	3.20	/ 4.40
Formaldehyde:		
USP, inh. dms, c.l. wks....lb.	.0625/	.0675
l.c.l., E. wks.....	.0675/	.0725
Fuel oil:		
Bunker C, No. 6 hvy. tanks,		
N.Y. harbor .....bbl.	2.10	/ —
light, tanks, refinery .....bbl.	2.00	/ 2.25
Hydrogen peroxide:		
USP, 35% cbys. E. of Miss. lb.	.23½/	.26½
Lime:		
hydrated, bags, wks. ....tons	13.50	
Rosin:		
B gum, drms, c.l. Savan..cwt.	7.00	/ —
K, M, N .....cwt.	7.34	/ 7.35
FF, wood, do. .....cwt.	4.10	/ 6.50
Rosin size:		
70%. gum & pale grds, tank		
cars, south, sh. pt.....cwt.	6.25	/ 6.30
Salt cake:		
dom. bulk, c.l. wks. .....ton	17.00	
wks. frt. all.....ton	20.00	/22.00
Soda ash:		
light, 58%, bags, wks.....	1.50	
bulk ....cwt.	1.20	
Sodium silicate, 40°:		
turbid. c.l. wks.....cwt.	1.30	/
l.c.l. wks.	1.60	/ 1.85
Sodium peroxide:		
dms. c.l. E. of Miss.....lb.	.21	
l.c.l. do. .....lb.	.21½/	.22
Soybean, protein:		
chem. isol, wks, c.l., bags..lb.	.23½/	.24¼
Sulfuric acid:		
60° Be cbys. c.l. wks.....cwt.	1.75	/ —
l.c.l. wks. ....cwt.	2.05	/ 2.85
Sulfur:		
crude, c.l. mines, contract,		
long ton	21.00	/22.00
f.o.b. vessels Gulf	22.50	/23.50
Sulfur dioxide:		
liquid, coml. cyl. wks.....lb.	.09	
multi-unit cars .....lb.	.0535	
Starches:		
pearl corn, bags, c.l. wks...cwt.	6.39	/ —
white, dextrines, c.l. wks...cwt.	7.78	/ —
potato, Idaho, c.l. wks....cwt.	8.60	/ 8.85
potato, Maine, f.o.b. wks...cwt.	10.50	/11.00
potato, imported O.D. ...bags	8.60	/ 8.90
Talc:		
domestic, sacks, c.l. wks...ton	25.00	/30.00
Titanium dioxide:		
anastase, c.l. deld., bags...lb.	.21	/ .21½
l.c.l. deld. .....lb.	.22	/ .22½
rutile, c.l. deld. .....lb.	.23	/ .23½
l.c.l. deld. .....lb.	.24	/ .24¼

Mexico Reports Oversupply of Printing Paper

Overproduction in the Mexican printing paper industry has created a "serious" situation, the Committee of Prices and Distribution of the Department of National Economy admitted. A spokesman said that "special efforts" were required by the Department to avoid partial suspension of activities by principal paper producers in Mexico, who have accumulated heavy stocks in their warehouses.

Some mills, which had announced a reduction of the work week to five days, have assured the Department they will wait a little longer. In a move to ease the situation plans are being pushed through to control imports of printing papers to only special types still not produced in Mexico and paper in very short supply.

Paper manufacturers have for long been insisting that principal reason of accumulation of paper in their warehouses has been the uncontrolled import from the U. S. and other markets. On the other hand, paper consumption internally has not kept pace with increased production. Production has risen from approximately 110,000 tons in 1947 to double this amount in 1951, and this year production has still been rising further.

Some mills, like "Papel Colyoacán," have accumulated large supplies. Actual count for the Coyoacán plant is 1,374 tons, while the *San Rafel y Anexas* plant has reported 5,180 tons of paper on hand. Some distributors have also acquired large reserves due to lack of market movement: Papel Mex has 2,000 tons and Depositarios de Fábricas de Monterrey, 1,000 tons.

The Mexican industry is attempting to find a solution by competing in the international market. While the situation for the moment is troublesome, the consensus of trade opinion is that future prospects are especially bright due especially to the initiating of activities to produce prime materials heretofore imported, such as cellulose. The development of foreign markets is also to receive most serious study, according to unofficial comments made by the Department of National Economy and industry leaders.

Canada's Increased Freight Rates Injure Its Chemical Industry

OTTAWA—As a result of increases in competitive railway freight rates, Canadian chemical producers in Eastern Canada may lose out on some of their business in British Columbia, including caustic soda used by pulp mills on the Pacific Coast. Such chemicals can now be imported more reasonably from United States suppliers for British Columbia pulp mills.

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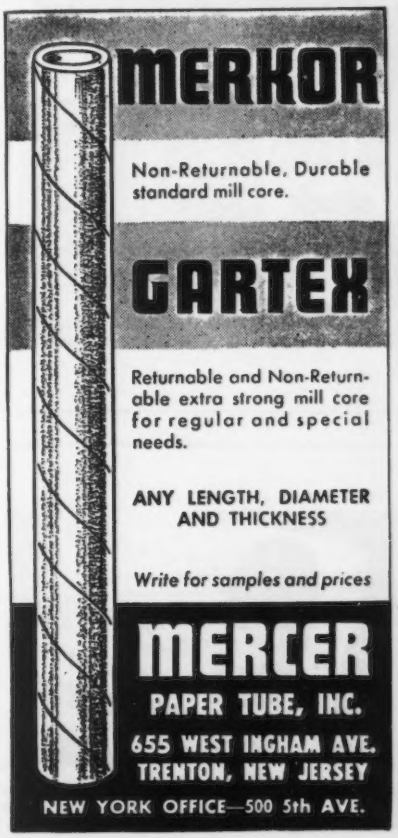

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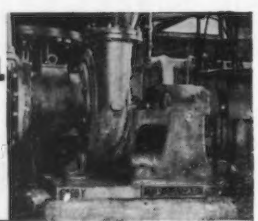
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AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1952	Sept. 27 90.7	Oct. 4 90.3	Oct. 11 90.0	Oct. 18 90.5r	Oct. 25 96.2
1951	Sept. 29 99.5	Oct. 6 101.0	Oct. 13 100.3	Oct. 20 100.4	Oct. 27 100.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1951	99.3	101.3	101.9	102.8	102.2	100.1	88.6	97.7	94.3	100.3	98.0	90.0	98.0
1952	97.1	97.8	95.1	90.6	88.6	87.6	75.5‡	86.7‡	82.5‡				

COMPARATIVE YEARLY SUMMARIES

	1945	1946	1947	1948	1949	1950	1951	1952
Year to Date	89.1	101.2	104.3	97.1	87.3	95.8	99.8	90.5
Year Average	85.4	96.9	101.7	92.1	83.7	95.8	98.0	

‡ Preliminary.
r Revised.

PAPERBOARD OPERATING RATIOS†

1952	Sept. 27 94	Oct. 4 95	Oct. 11 96	Oct. 18 97	Oct. 25 97
1951	Sept. 29 90	Oct. 6 88	Oct. 13 90	Oct. 20 89	Oct. 27 85

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1951	102	105	104	103	104	103	84	94	86	87	82	75	94
1952	81	86	85	82	82	82	71	89	88				

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables *all* the ratios shown are on the basis of a normal 6 and 7 day capacity.

† Per cents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

OBITUARIES

Walter Laidlaw Fink, 66, died at his home in Manhasset, N. Y., on October 27, after a long illness. Mr. Fink entered the employ of W. F. Etherington & Co., Inc., paper dealers, 46 years ago, starting as an office boy. At the time of his retirement due to ill health two years ago, he was vice-president and secretary. He had been a salesman for the company for a great many years.

Thorwald A. Carlson, 59, nationally known packaging expert, died October 24, 1952, at Madison, Wis. Mr. Carlson directed far-flung packaging operations of the military forces during World War II as chief of packaging research at the U. S. Forest Products Laboratory. He had been ill since midsummer.

A research engineer at the Laboratory for 31 years, he specialized in packaging throughout his Laboratory career. In 1941, when lend-lease and military overseas shipping problems required great expansion of the Laboratory's research, he organized and assumed charge of a staff of experts that numbered, at the peak of World War II activities, more than 150 men and women.

Charles Julian Kaiser, 50, vice-president, general manager and director of Stevens Paper Mills, Inc., Windsor, Conn., died at Hartford hospital after a brief illness. Mr. Kaiser joined the Stevens Co. in 1925 and resided in East Granby, Conn.

Julius Jacobson, 66, sales executive for Southern Kraft Div. of International Paper Corp., died in Atlanta, Ga., on October 25. He was with International about 30 years.

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Plant engineers, mech. engineers, master mechanics, maintenance and mach. shop foremen, designers and draftsmen, salary range $5,000 to $10,000; salesmen to sell papers, folding cartons and to sell products to paper and pulp mills and paper converting plants; foreman cutting and creasing die room, folding carton operations; cylinder and Fourdrinier mach. foreman; power supervisors; beater engineers; mach tenders and back tenders.

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OHIO PAPER MILL producing quality papers, desires sheet cutter foreman. Steady employment, good wages. Ability to organize, handle help. Maintain equipment and secure high speed production essential. References. Write for interview. Address Box 52-464 care Paper Trade Journal. N-21

MAJOR METROPOLITAN Petroleum Company laboratory requires services of a chemist, experienced in paper converting operations, for development and application work on waxes. Give personal history, training, experience and salary requirements in application to Box 52-469 care Paper Trade Journal. N-14

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Excellent opportunity for chemist or chemical engineer interested in research and development work with a large organization. Prefer Ph.D. with pulp, paper, paperboard or paper coating experience. Supervisory ability desirable. Send complete resumé to Box No. 52-446 care Paper Trade Journal. N-7

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JOLIET, ILLINOIS PHONE 3-3441 OR WRITE TF

GENERAL ACCOUNTANT

Under general direction of comptroller, to supervise general accounting dept., maintain general ledger, develop financial statements, prepare all tax returns, and handle operating budgets. Should have college degree plus at least five years of accounting experience in paper industry. In reply summarize training and experience. Address—Bowaters Southern Paper Corporation, Calhoun, McMinn County, Tennessee. TF

PLANT ENGINEER

To coordinate activities of design engineering firm and contractors during construction. Direct all engineering and maintenance in completed mill. Should have not less than ten years experience in pulp and paper mill maintenance. Experience in maintenance of sulphate pulp production facilities necessary. Familiarity with groundwood and newsprint production desirable. Summarize experience. Bowaters Southern Paper Corp., Calhoun, McMinn County, Tennessee. TF

SUPERINTENDENT wanted to supervise manufacture Fine Paper and Sulphite specialties in integrated New England Mill. Good opportunity for right man. Address Box 52-459 care Paper Trade Journal. N-7

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 52-76 care Paper Trade Journal. TF

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SUPERINTENDENT—25 years practical experience manufacturing folding boxboard and high grade light and heavy weight specialties from sulphite, sulphate, groundwood and old paper stock. Aggressive, capable man, good references. Address Box 52-402 care Paper Trade Journal. N-7

EXPERT CONSULTING SERVICES AND LABORATORY FACILITIES—Available for problems relating to waste paper; its stock preparation, de-inking, bleaching; plant engineering, design, construction, operational problems. In strictest confidence. Address Box 52-454 care Paper Trade Journal. TF

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SUPERINTENDENT—With proven operating ability—sound practical and basic technical experience. Yankee or Fourdrinier type machines. Light and heavy specialty grades. Good knowledge of stock preparation—middle age—good health—references. Address Box 52-471 care Paper Trade Journal. N-14

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One (1) **500 KW 80% 625 KVA General Electric Alternating Current Generator,** type ATB, Form HL, 3 phase, 60 cycle, 3600 RPM direct connected to:

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1—112″ Type 18

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1—62″ Beck Duplex Rewind Razor Blade Slitter and Rewinder, Suitable for paper and plastics
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12—Seybold, 44″ Auto Space "Sixty"; 50″, 56″, and 64″ 10Z; 56″ 8Z, 44″ 6Z, 39″, 44″ and 65″ 20th Century; 44″, 48″ and 55″ Holyoke.
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4—Acme, 32″, 34″, 36″ and 50″
2—Smith & Winchester Undercut, 63″ and 69″.

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150	G.E.	Syn.	600	ATI
125	West.	Syn.	277	
100	G.E.	S.R.	450	I M
100	West.	Syn.	900	
100	G.E.	S.C.	1750	IK
100	West.	S.C.	1200	CS
75	West.	S.C.	900	CS
75	Ridgway	S.R.	720	(2200 v)
60	West.	S.R.	575	CW
50	West.	S.C.	1750	CS
50	West.	S.C.	900	CS
3-50	G.E.	S.C.	1750	KT
40	West.	S.C.	900	CS
40	G.E.	S.C.	1200	KT
40	G.E.	S.R.	860	MT
30	West.	S.C.	900	CS
25	Cr.Wh.	S.C.	865	
20	West.	S.C.	1750	CS
20	West	S.C.	1200	CS
15(2)	Al.Ch.(New)	S.C.	1200	AR
15	Al.Ch.(New)	S.C.	1800	AR
10	West.	S.C.	570	CS566C
10(5)	Al.Ch.	S.L.	575	ARY
10	West.	S.C.	1200	CS370C
10(2)	Al.Ch.(New)	S.C.	1200	AR
10	Al.Ch.(New)	S.C.	1800	AR
7½	Al.Ch.(New)	S.C.	1800	AR
7½(2)	Al.Ch.	S.L.	570	ARY
7½	G.E.	S.C.	1200	KT
7½	West.	S.C.	3470	CS254X
5	West.	S.C.	1200	CS
5(3)	Al.Ch.(New)	S.C.	1200	AR
3	West.	S.C.	1750	

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Inquiries Solicited N-7

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42″ Camachine No. 6.
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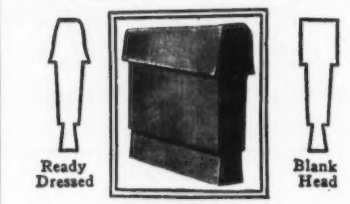

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PAPER AND PULP MACHINERY

AGITATOR DRIVES
2—Cleveland enclosed—3 h.p. Ratio 24 to 1.
1—Foote Bros. enclosed—15 h.p. Ratio 33 to 1.

AIR HOIST
1—5-ton Ingersoll-Rand with Trolley.

BALERS
1—Economy Baler—20¼ x 24 x 49.
1—Economy Baler—18½ x 34 x 42¼.
1—Logeman Baler—27¼ x 47½ x 62 with GE Motor and Controls.

BEATER FILLING
1—New 54" Beater Filling with ⅜" bars, woods and bed plate.

BLOWERS
1—Sturtevant Monogram Fan, Ball bearing, Size 7.
1—Sturtevant Multivane Fan, Ball bearing, Size 6.

CALENDER ROLLS
16—Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—Farrel Birmingham, 5 roll, 108" Calender with doctors, 2 rolls bored for steam.
1—Black Clawson 90" 7 roll with 2 spare rolls.

"CYCLAFINER"
1—Shartle "Cyclafiner" with coupling.

CYLINDER MOLDS
1—134" face x 36" diameter, with stainless steel shafts.
1—77" face x 48" dia.—Stainless Steel Shaft.

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRIVES
1—#3 Reeves anti-friction bearing.
1—#6 Reeves anti-friction bearing with motor for adjustment.
1—Beloit enclosed drive right angle, ratio 3 to 1, with couplings and pulleys.
1—Falk enclosed drive, 100 H.P., ratio 5 to 1.
1—Link-Belt 40 h.p., ratio 2.2-1, 500 r.p.m.—227 r.p.m.
1—Cleveland enclosed drive right angle, 7 h.p., 24¼ to 1 ratio, 1750 r.p.m.
3—#2 Reeves enclosed vertical drives, ratio 3 to 1.

DRYERS
14—160" face x 48" diameter.
2—160" face x 36" diameter.
34—143" face x 48" diameter with frames, gears, bearings, steam joints, etc.
7—137" face x 48" diameter with frames, gears, bearings, steam joints, etc.
13—132" face x 48" diameter with frames, gears, bearings, steam joints, etc.
1—130" face x 48" diameter.
19—127" face x 42" diameter.
1—126" face x 48" diameter.
2—124" face x 48" diameter.
1—117" face x 48" diameter.
2—116" face x 48" diameter.
2—116" face x 36" diameter, with gears and bearings.
3—110" face x 42" diameter, with bearings.
1—104" face x 36" diameter.
2—103" face x 48" diameter.
1—102" face x 48" diameter, with bearings.
15—86" face x 36" diameter, with frames, gears adn bearings.
20—88" face x 36" diameter, with frames, gears adn bearings.
1—77" face x 48" diameter—with gear.
39—46" face x 48" diameter, with gears, bearings and steam joints.
3—42" face x 36" diameter, with frames, gears and bearings.

EXTRACTOR ROLLS
1—Downingtown Extractor Roll—128" face x 24" diameter. Anti-friction bearings.

FILTER PRESS
1—New Sperry 12" Filter Press—20 plate.

FILTERS
1—Oliver Vacuum Filter, 10' face x 5' 3" diameter. Steel vat.

FLAT SCREENS
3—8 plate Sandy Hill Roller Shoe with scrapers.
3—Bagley & Sewall 8 plate, with scrapers and plates.

FOURDRINIER SECTION
1—Pusey & Jones 156" x 80' Wire—Ball bearing. Complete from Voith Inlet to 22" diameter suction couch.

FOURDRINIER WIRES
3—New Lindsay 76" x 47 ft. 10"—60 mesh.

"HYDRAPULPER"
1—Shartle-Dilts 16' batch with hydraulic dump valve—cast iron tub.

HYDRAULIC PRESS
1—Thorpe 200 ton. Steam platens, 40" x 40" with pump.

JORDANS
1—#6 Miami, for motor drive.
1—Jones Majestic Stainless Steel Filling.
2—E. D. Jones Pony, 3/16" stainless steel fillings—banded plugs, spare new fillings.
1—Smith & Winchester Standard with granite fillings.

KNIFE GRINDER
1—100" Hanchett Knife Grinder with motor.

MOTORS
1—Allis Chalmers 30 h.p., 440 v., 660 r.p.m.
1—General Electric—25 h.p.—230 volts—3 ph. —60 cycle—300/900 r.p.m.
25 other 440 v. motors from 2 h.p. to 15 h.p.

PULP EQUIPMENT
2—APMEW Ball Bearing Pulp Screens—30 ton capacity—outward flow.
1—D. J. Murray 10' x 25' Barking Drum.

PULPERS
2—#2 Lannoye.

PUMPS
1—New Worthington—bronze filled, 10,000 g.p.m., 35' head, with extended base for motor—spare new impeller.
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year.

REELS
1—2 bowl 106"—18" diameter iron bowls.
1—2 bowl 94"—16" diameter bowls.
1—Pusey & Jones 162" drum reel, complete with unwind stand and water cooled brake.

REFINER
1—Shartle Hydrafiner with coupling and new spare stainless steel filling.

ROLL GRINDER
1—Lobdell 18' Roll Grinder handles 26" maximum diameter rolls.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
1—#2 Bird—Copper vat.
1—#2A Bird—Copper vat.

SAVEALL
1—Bird #5 with enclosed drive and 3 h.p. motor.

SCREW PRESSES
1—Valley Voith Screw Press, size 2.
1—Valley Voith Screw Press—enclosed drive.

SHEETERS
1—Hamblet 124" Duplex Sheeter with maxim layboy—8 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter. Maxson layboy overlapping delivery. 8 roll backstand, motor and starter.
2—Finley 42", single knife.
1—Moore & White 42", single knife.

SHREDDERS
1—American 37" Hammermill, anti-friction bearing.
1—Jeffrey, 26½" knives, 7 knife rotor, 6 knife bed plate. Ball bearing.

SLITTERS AND WINDERS
1—Beloit 125" Paper Machine Slitter and Rewinder—42" rewind.
1—Cameron 42", Model 6—24" rewind.
1—Cameron 44", Model 9-5.

SMOOTHING PRESSES
2—New Farrel Birmingham 108" face x 24" diameter. Rubber covered, with ball bearings and enclosed drives.

STEAM TURBINES
1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 35 p.s.i. Complete with gear reducer.
1—De Laval Variable Speed—325 h.p. at 135 gauge and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
2—Beloit 8 x 10 Triplex.
1—Triplex—8 x 10. Used less than 1 year.
2—Shartle Agi-flo, 13" suction, 14" and 4" discharge. Anti-friction bearings.
1—Beloit 10 x 20 Triplex.
1—Moore & White 10 x 16 Triplex.
1—Moore & White 8 x 8 Triplex.

SUCTION BOXES
6—Brass Suction Boxes, 156" x 4" opening.

SUCTION COUCH ROLLS
1—Millspaugh 36" diameter x 234" drilled face with enclosed drive, water cooled bearings, 12" suction boxes.
1—Millspaugh 156" drilled face x 22" diameter Suction Couch. Operated at 1000 ft. per minute.

SUCTION FELT ROLL
1—New Downingtown 186" drilled face x 16" diameter, with anti friction bearings and stands.

SUCTION PRESS ROLLS
1—Sandusky 84" drilled face x 22" diameter, rebuilt.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141 automatic 81" Perforator, Slitter and Winder—with three motors—ball bearing.

TRANSMISSION ROPE
700 ft.—New 1¼" Hemp Rope.
700 ft.—New 1¼" Cotton Rope.

VACUUM PUMPS
2—Nash ½ H-5 Vacuum Pumps.

VOITH INLETS
2—Valley Iron Voith Inlets, adjustable 83" to 86"—brass lip, stainless steel apron.
1—Valley Iron Voith Inlet 156", with motor drive, brass construction. Operated at 1000 ft. per minute.

VORTRAPS
9—4" Stainless Steel with rubber lined heads. 3" Hills McCanna Valves and stainless steel headers.

WRAPPING MACHINE
1—Morrow Stevens type 1C. Package thickness ¼" to 5". Used 30 days.

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FOR SALE—One 14 x 14 Chandler & Taylor Variable Speed Engine 300—50 revolutions per minute, 60" x 26" flywheel equipped with Armstrong governors and Moore & White speed changer. This engine is on its original foundation and can be inspected at any time. Address Box 52-417 care Paper Trade Journal. N-28

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PRACTICAL PAPER TECHNOLOGY

in letter to William Bond Wheelwright here quoted by permission.

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Chairman of the Board October 10, 1952

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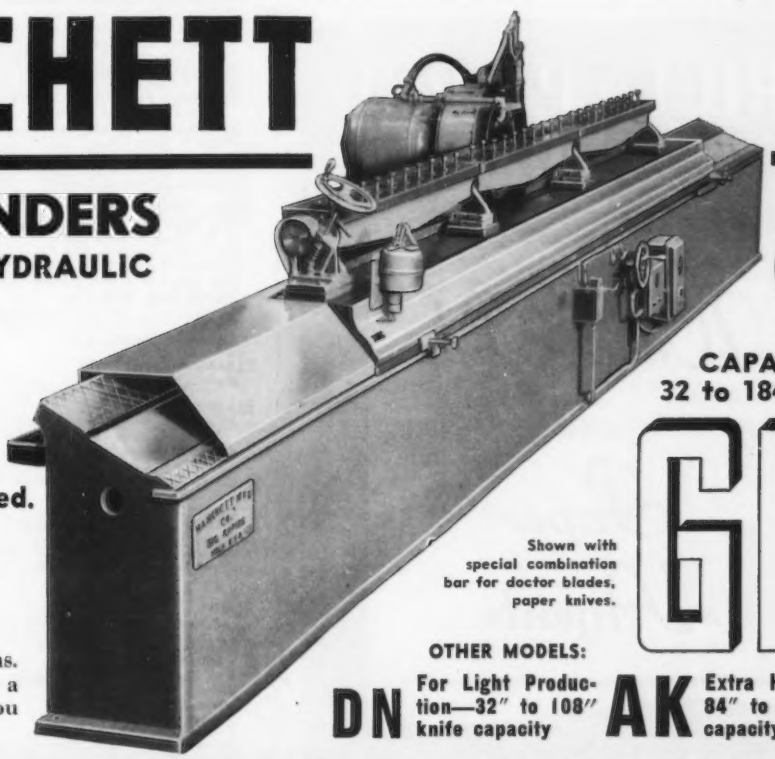

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Kinsley Chemical Co.
Rice Barton Research Corp.
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General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTER CIRCULATING SYSTEMS
Fibre Making Processes, Inc.

DIGESTERS
Babcock & Wilcox Co.
Biggs Boiler Works Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Pandia, Inc.
Paper & Industrial Appliances
Pusey & Jones Corp.

DISPERSING AGENTS
Calgon, Inc
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
Lobdell United Co.
Lodding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.
Westinghouse Electric Corp.

DRIERS
The Bagley & Sewall Company
Beloit Iron Works
Biggs Boiler Works Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Jackson & Church Co.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIERS—LABORATORY
The Noble & Wood Machine Co.

DRILLED SUCTION COUCH ROLLS
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Manchester Machine Co.

DRIVES
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dodge Mfg. Corp.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Manchester Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Valley Iron Works Co.

DRUM WINDERS
Manchester Machine Co.
Rice Barton Corporation

DRYER ROLL PYROMETER
Midwest Fulton Mch. Co.
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company
Calco Chemical Div.
Ciba Company

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ELECTRICAL PRECIPITATORS
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Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.
Wheeler Roll Co.

EMPLOYMENT SERVICE
Bixby, R. W., Inc.
Raymond, Chas. P., Service, Inc.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

EVAPORATORS
Biggs Boiler Works Co.
Goslin-Birmingham Mfg. Co., Inc.
Jackson & Church Co.
Murray, D. J., Mfg. Co
Swenson Evaporator Co., Div. of Whiting Corp.
Westinghouse Electric Corp.

EXPANDERS
Mount Hope Machinery Co

FANS
General Electric Co.
B F. Perkins & Son, Inc.
Ross Engineering Co., J. O
Westinghouse Electric Corp.

FEEDERS
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co
The Permutit Company

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Morey Paper Mill Supply Co
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
The Noble & Wood Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT GUIDES
Black Clawson Company
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
The Noble & Wood Machine Co
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FIBRE BOARD MACHINES
The Noble & Wood Machine Co

FILLERS
American Cyanamid Company. Industrial Chemicals Division
J. M. Huber Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
R. P. Adams Co., Inc.
Bird Machine Company
Holyoke Machine Co.
Hungerford & Terry, Inc.
Improved Paper Machinery Corp.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Grinnell Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Dodge Manufacturing Corp.
Egan, Frank W., & Co.
Jeffrey Mfg Co.
John Waldron Corp.
Westinghouse Electric Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOTATION EQUIPMENT
Denver Equipment Co.

FLOW BOXES
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Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co
Williams Apparatus Co., Inc

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Manchester Machine Co.
The Moore & White Co.
Noble & Wood Machine Co
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

GASKETS
B F. Goodrich Co.
The Goodyear Tire & Rubber Company

GEAR REDUCERS
Dodge Mfg. Corp.

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
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Shartle Brothers Machine Co.
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Farrel-Birmingham Co.
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Norton Company
Simonds Abrasive Co.

GUIDES
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Beloit Iron Works
Black-Clawson Co.
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
John Waldron Corp.

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Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works
Waldron, John, Corp.

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Ross, J. O., Engrg. Corp.
Valley Iron Works Co.
Westinghouse Electric Corp.

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Reading Crane & Hoist Corp.

HOSE (Air, Water, Suction, etc.)
B. F. Goodrich Co.
The Goodyear Tire & Rubber Company

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Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
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B. F. Goodrich Chemical Co.

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Dilts Machine Works

INDUSTRIAL TIRES
B. F. Goodrich Co.

INDUSTRIAL TRACTORS
Towmotor Corp.

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Cambridge Instrument Co.
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B. F. Perkins & Son
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Tracerlab, Inc.
A. van der Korput
Williams Apparatus Co.
Westinghouse Electric Corp.

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The Bagley & Sewall Company
Beloit Iron Works
Cram Associates
Johnson Corp.
Rice Barton Corporation
Shartle Bros. Mch. Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

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Jackson & Church Co.
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Dilts Machine Works, Inc.
Dusenbery Co., Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
The Moore & White Co.
The Noble & Wood Machine Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

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Black Clawson Co.
Fibre Making Processes, Inc.
Improved Paper Machinery Corp.

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Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
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Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

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Rice Barton Corporation
John Waldron Corp.

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Hart-Moisture-Meters

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Beloit Iron Works
Black-Clawson Co.
Manchester Machine Co.
Rice Barton Corporation
Westinghouse Electric Corp.

PAPER MACHINES
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Beloit Iron Works
Bagley & Sewall Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Manchester Machine Co.
Moore & White Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINES—LABORATORY
The Noble & Wood Machine Co.

PAPER MACHINE SLICES
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E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

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Gibbs-Brower Company, Inc.
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Hudson Sharp Machine Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.

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Sun Oil Company

PARAFFIN WAX EMULSIONS
American Cyanamid Co., Ind. Chem. Div.
Hercules Powder Co., Inc.
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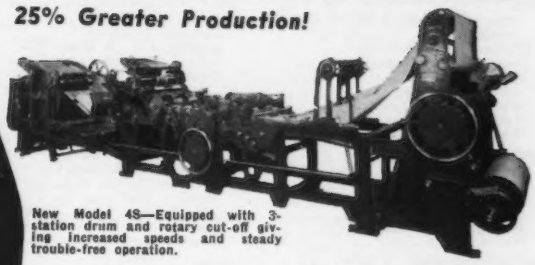

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Grinnell Company
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National Tube Co.
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Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

PITCH CONTROL
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co

PLASTICIZERS
American Cyanamid Company, Industrial Chemicals Division
Aktivin Division. Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Jackson & Church Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Rohm & Haas Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
Lukenweld Division
Lukens Steel Company
J. O. Ross Engrg. Corp.
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co

POPE TYPE REELS
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Manchester Machine Co
Rice Barton Corporation

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Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
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General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Black-Clawson Co.
Goodrich, B. F., Company, Inc.
Manchester Machine Co.
Rice Barton Corporation

PRESSURE FILTERS
Holyoke Machine Co
Jackson & Church Co.

PRESSURE VESSELS
Biggs Boiler Works Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Beloit Iron Works
Black Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Gibbs-Brower Company, Inc.
Hudson-Sharp Mch. Co.
Jackson & Church Co.
Manchester Machine Co.
The Moore & White Co.
Potdevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEYS
Black-Clawson Co.
Dodge Mfg. Corp.
Rice Barton Corporation

PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co.

PULP CLEANERS
Bird Machine Co.
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
Crane Company
Grinnell Company
Record Fdy. & Mach. Co.
Rice Barton Research Corp.
Shartle Brothers Machine Co.

PULPERS
Apmew, Inc.
Bauer Brothers Co.
Cowles Company
Dilts Machine Works
E. D. Jones & Sons Co.
Midwest Fulton Mch. Co.
Morden Machines Co.
The Noble & Wood Machine Co.
Rice Barton Research Corp.
Shartle Brothers Machine Co.

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Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Nordicus, Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.
Restigouche Co., Ltd.

PULP SCREENS
Bird Machine Co.
Trimbey Machine Works

PULPSTONES
Norton Company

PULP TESTERS
Williams Apparatus Co., Inc.

PULPWOOD WASHERS
Fibre Making Processes, Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
Jeffrey Mfg. Co.
F. L. Smith & Co.

PUMPS
Apmew, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
The Noble & Wood Machine Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Co.

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
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General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

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Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Manchester Machine Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.
Waldron, John, Corp.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hermann Mfg. Co.
Jackson & Church Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
The Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout Waldron & Co., Inc.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Apmew, Inc.
Bird Machine Company
General Electric Co.
Improved Paper Machinery Corp.
Johnson Corp.
Meyer Governor Co.
Shartle Brothers Machine Co.
Taylor Instrument Companies
Trimbey Machine Works
Westinghouse Electric Corp.

RESINS
American Cyanamid Company, Plastics & Resins Division
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pittsburgh Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co., Resinous Products Div.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
B. F. Goodrich Co.
Holyoke Machine Co.
Lindsay Wire Weaving Co.
Lobdell United Co.
Manchester Machine Co.
The Moore & White Co.
D. J. Murray Mfg. Co.
The Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
J. J. Ross Company
Rice Barton Corporation
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stowe-Woodward Inc.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Cameron Machine Co.
Dilts Machine Works (Kohler Systems)
Frank W. Egan & Co.
Johnstone Engrg. & Mch. Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROLL WRAPPERS
Lawton Company

ROPE CARRIERS
Black Clawson Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

ROTARY KILNS
Biggs Boiler Works Co.
F. L. Smidth & Co.

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

RUBBER LINING
B. F. Goodrich Co.

RUBBER PRODUCTS
The Goodyear Tire & Rubber Company

SALT CAKE
Ethyl Corporation

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Potdevin Machine Co.
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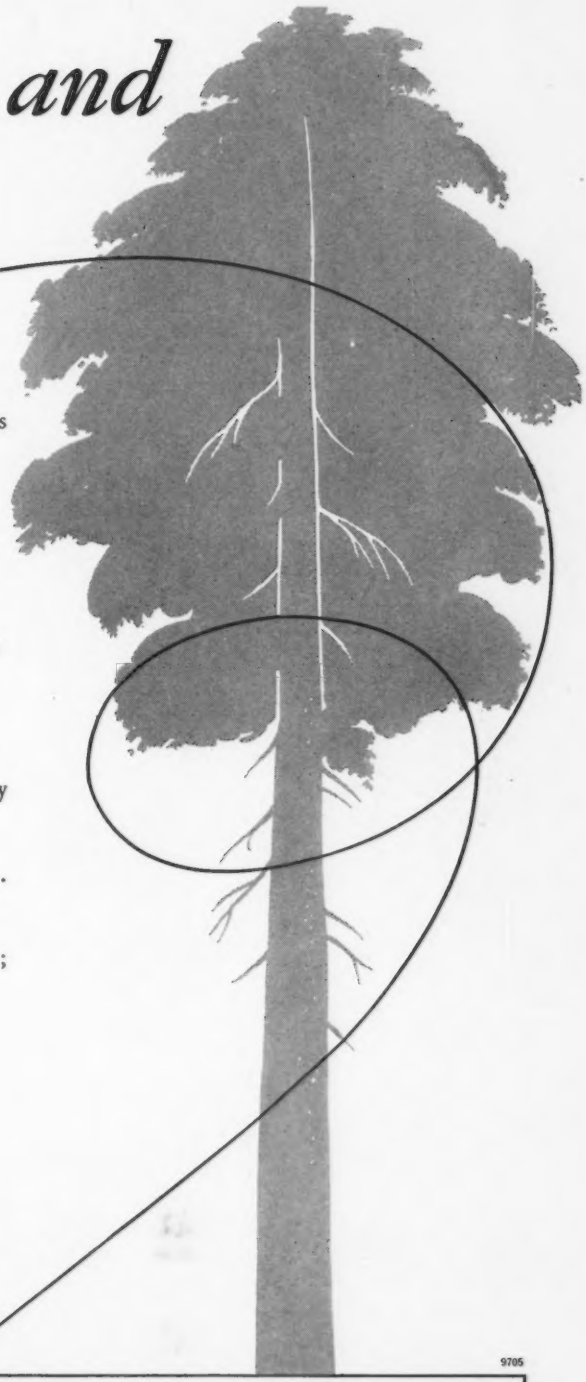

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Two types of Titanox pigments contribute to the improvement of coatings. TITANOX-A-WD is recommended where exceptionally high opacity is required in light weight coatings. Where heavier coating is desired, or the full power of pure titanium dioxide is not needed, TITANOX-RCHT, a rutile-calcium pigment, is effective and most economical. Often, a combination of both types of pigment proves to be the best choice. Each pigment, because of its fine particle size, disperses easily and uniformly in the coating mix.

In choosing the Titanox pigment best suited to your needs, consult our Technical Service Department... ask your Titanox representative or write Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

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